

## **K2010 NEWS By Karan Abar Baspar**

### **EPI's TDPA™ Additives for Oxo-Biodegradable Plastics**

Founded in 1991, EPI Environmental Products Inc. pioneered Oxo-biodegradable plastic technology. EPI develops, manufactures, distributes and sells Totally Degradable Plastics Additives or “TDPA™”.

TDPA™ has been adopted for use in over 60 countries. Some of the world's largest, most trusted and best-known retailers have used TDPA™, including TESCO, Migros, Wong and Exito, the largest supermarkets in the UK, Turkey, Peru and Colombia, respectively.

Conventional plastic resins such as polyethylene (PE), polypropylene (PP) and polystyrene (PS) are widely used in the packaging industry. When plastic manufacturers adopt EPI's TDPA™ technology, the end plastic products will become degradable and eventually biodegradable when disposed of in the appropriate environment. TDPA™ causes the plastic to fragment, then in the presence of oxygen, heat and moisture, microorganisms will consume the degraded plastic to form carbon dioxide, water and biomass. EPI's Oxo-biodegradable technology can be safely added in the manufacturing of product applications such as plastic bags, shrink, cling and stretch films, containers, food service packaging, personal care products and agriculture films.

TDPA™ has been tested in accordance with ASTM International Standard Guide D6954-04 and is food contact compliant with FDA (USA) and EFSA (Europe). When combined with waste management programs, EPI's TDPA™ technology is the global solution to reduction of plastic waste.

EPI is a customer service oriented, client-focused company, with unsurpassed sales and technical support, R&D and production facilities. EPI's head office is in Vancouver, BC, Canada with branch offices in the UK and representatives around the globe.





**APPLICAZIONI  
PLASTICHE  
INDUSTRIALI**  
CREATING FLEXIBLE SOLUTIONS

## **API Plastis**

Product Information of Product Category Ethylene/VAC-copolymers (E/VA)



### **Apifive**

Compounds based on EVA (ethyl-vinyl acetate)

Features:

modified with thermoplastic elastomers and rubbers to improve softness, soft touch and matt finish (imitation of vulcanized rubber) with excellent aesthetics. Possibility to colour with specific masterbatches.

Processing technologies:

modified injection

moulding process.

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### **Apizero**

Compounds based on EVA (ethyl-vinyl acetate)

Features:

expandable and crosslinkable with particular characteristics of lightness, good mechanical properties and aesthetics, high and low temperature resistance, good abrasion resistance possibility to colour with specific masterbatches.

Processing technologies:

modified injection moulding process.

Product Information of Product Category Masterbatches

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### **apicolor**

COLOUR MASTERBATCHES based on various elastomers

Features:

to get better compatibility with the product to be coloured without changing its intrinsic properties. Heavy metal free, FDA and EN 90/128 EEC grades approved are available.

Product Information of Product Category Thermoplastic urethane TPE-U/TPU

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## **apilon 52**

TPU (thermoplastic polyurethanes) and compunjds based on TPU

Features:

Hardness ShA 60 - ShD 75, wide range of formulations including both polyester and polyether grades. Excellent mechanical properties, chemical, low temperature and abrasion resistance, improved processability.

Processing technologies:

injection and intrusion moulding, extrusion.

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## **apilon 52bio**

TPU bioplastics

Features:

With the aim to offer bioplastics that can help the reduction of CO2 emissions, API launches a new development in the TPU market: APILON 52 BIO based on renewable raw materials. APILON 52 BIO is a bioplastic with a renewable raw material content between 30 - 60% and with the same features of quality and processability of traditional oil-based TPU

Processing technologies:

Injection and intrusion moulding, overmoulding, extrusion.

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## **apilon 52c**

TPU (aromatic thermoplastic polyurethanes)

Features:

The wide range of APILON 52 C products consisting exclusively of aromatic thermoplastic polyurethanes is equiped to meet most market demands. The APILON 52 C famiy is

organized in different chemical types, designed to provide a physical/chemical performance corresponding to the specific needs of different uses in the FOOTWEAR, CLOTHING, LEATHER GOODS AND FURNISHINGS industries.

Processing technologies:

dissolution process with DMF solvent,

finish coating and coagulation.

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### **apilon 64**



Compounds based on plasticized PVC modified with thermoplastic polyurethanes

Features:

Hardness ShA 60-80, compact and expanded grades, wide melt flow range, good chemical, abrasion and low temperature resistance, matt and shiny surface, imitation of vulcanized rubber.

Processing technologies:

injection and intrusion moulding, extrusion.

Product Information of Product Category Thermoplastic elastomers dynamically crosslinked, TPE-V/TPV

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### **tivilon**



Innovative compounds based on TPV (thermoplastic vulcanizates)

Features:

Hardness ShA 30 - ShD 45 high elasticity at low and high temperatures, excellent compression set, UV resistance, high melt flow and good abrasion resistance. Excellent processability.

Processing technologies:

injection moulding, extrusion and blow moulding.

Product Information of Product Category Compounds of styrenic block copolymers (SEBS, SBS, SIS?, TPE-S)

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## **Megol**

Compounds based on SEBS (styrene-ethylene-butylene-styrene)

Features:

Hardness ShA 20 - ShD 65.

Excellent elasticity at low and high temperatures, UV and aging stability, broad processing range, excellent aesthetic. Available grades for co-extrusion and over- moulding with engineering plastics (PP, PE, ABS, SAN, PPMA, PC, PET, PA6, PA66, TPU, etc.) and with good compression set, FDA and EN 90/128 EEC grades approved are available.

Processing technologies:

injection moulding and over-moulding, extrusion and blow moulding.

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## **Raplan**

Compounds based on SBS (styrene-butadiene-styrene)

Features:

Hardness ShA 30 - ShD 45, excellent elastic properties, wide melt flow range, compact and expanded grades, abrasion resistance, matt and shiny surface, transparency and low temperature resistance, broad processing range. FDA and EN 90/128 EEC grades approved are available.

Processing technologies:

injection and intrusion moulding, extrusion.

Product Information of Product Category Thermoplastic elastomers based on PVC, TPE/PVC

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## **Apiflex**

Compounds based on plasticized PVC

Features:

Hardness ShA 45-95, compact and expanded grades, heavy metal free, wide melt flow range, good chemical and abrasion resistance, FDA and EN 90/128 EEC grades approved are available.

Processing technologies:

injection moulding and extrusion.

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### **Apilon 33**



Compounds based on plasticized PVC modified with nitrilic rubber

Features:

Hardness ShA 50-80, both compact and expanded grades, heavy metal free, wide melt flow range, good chemical and low temperature resistance, antistatic properties. FDA and EN 90/128 EEC grades approved are available.

Processing technologies:

injection moulding and extrusion.

Product Information of Product Category Olefin based thermoplastic elastomer, TPO

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### **Apigo**



Compounds based on TPO (thermoplastic polyolefines)

Features:

modified with elastomers.

Hardness ShA 50- ShD 65. Lightness, low temperature resistance, resilience and stiffness. Innovative alternative to traditional materials where recycling and low environmental impact are requested.

Processing technologies:

injection moulding and over-moulding, extrusion.

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### **[3B, The Fibreglass Company](#)**

3B is one of the major fibreglass reinforcement manufacturers in Europe. Headquartered in Belgium, with plants in Belgium and Norway, 3B has a rich heritage of expertise in fibreglass development and production. Our proprietary technologies Advantex® and HiPer – tex™ are well established brands that combine class leading performance with low environmental emissions. Our products are used in a wide range of applications including high pressure vessels.

Advantex® is a registered trademark of Owens Corning used under license.

Based on its state-of-the-art manufacturing plants, 3B is the biggest European player in thermoplastics reinforcement with a clear strategy to growth at a global level providing an incomparable service to its customers. Its extensive knowledge and expertise is a valuable asset to any company active in compounding and injection moulding.

Based on its R&D Centre rich of a 20 years experience in composite science, 3B has demonstrated its ability to overcome all the new industry challenges and has a solid expertise in high DaM performances, hydrolysis/glycolysis resistance and white margin: 3B proposes Chopped Strands to reinforce various plastics, such as Polyamides (PA6, PA66,...), Polypropylene (PP), Polybutylene terephthalate (PBT), Styrenics (ABS, SAN, ...), Polycarbonate (PC), Polysulfone (PES, PSU, PPSU), Polyphenylene sulphide (PPS), Polyphenylene oxide (PPO), Polyetheretherketone (PEEK), Polyacetal (POM), etc. Besides outstanding mechanical performances, 3B products offer excellent flow ability properties, very low level of fines fibres and then to improve processing productivity.

3B provides also products specifically designed for Long Fibre Polyamide (PA6, PA66, etc.) and Polypropylene (PP).

Please consult [www.3b-fibreglass.com](http://www.3b-fibreglass.com) for more details.



### **[K2010: A Showcase for Arkema's Latest Innovations](#)**

August 26, 2010 - Arkema's polymers play a part in the vast majority of industries: automotive, electronics, furniture, construction, packaging, medical and the energies sector, and are used in increasing amounts with ever more cutting edge qualities. They help manufacture increasingly sturdy, light and durable components, often replacing metal or glass. With its extensive range of technical polymers of renewable origin at the forefront, Arkema will be exhibiting at the upcoming Kunststoffe 2010 tradeshow with an original stand showcasing the many applications of its plastics.

On an innovative stand with a streamlined look, visitors will be able to discover the applications of Arkema's materials and additives through four « market hubs »: Lifestyle (sport, decoration, consumer products, medical), Construction (public works, construction, furniture and fittings, window profiles), Energy (photovoltaics, electric cables, batteries, offshore pipes, wind turbines), and Transport (automotive, aerospace). 3D clips for each of these four themes will highlight Arkema's products and their presence in everyday life: technical polymers ([Pebax®](#), polyamides 11 and 12), [Kynar®](#) PVDF fluorinated polymers, functional additives (PVC stabilisers, impact modifiers and processing aids), polyolefins, [Altuglas®](#) acrylic resins, PVC polymers (general use, PVC paste, emulsion and micro-suspension, chlorinated PVC), as well as carbon nanotube masterbatches, and the new PEKK ultra high performance polymer.

### **Biosourced plastics in the limelight**

Biosourced plastics(1) already account for 30% of Arkema's technical polymer business, and call upon around 2/3rds of this activity's R&D. These polymers offer the same properties as their oil-sourced counterparts, even outperforming them. By exhibiting objects and prototypes made from these materials, Arkema will showcase its biosourced polymers in particular: [Rilsan®](#) 11 (polyamide processed entirely from castor oil), [Pebax®](#) Rnew (up to 90% biosourced elastomer), [Rilsan®](#) Clear Rnew (transparent polyamide made from 54% renewable raw materials). [Rilsan®](#) HT (high temperature polymer derived from castor oil for engine-compartment automotive applications). The first office chairs designed by Japan's n°2 furniture maker will be unveiled for preview - their main components and textiles are made from [Rilsan®](#) 11 and [Pebax®](#) Rnew -, and so will objects made of [Rilsan®](#) and [Pebax®](#) Rnew developed with the Japanese company Sanko Lite, specialised in the use of Urushi natural lacquer.

New developments in functional additives and [Altuglas®](#) acrylic glass [K2010](#) will see the launch of [Durastrength®](#) 365, a patented innovation from Arkema's Functional Additives business unit which is unique on the acrylic impact modifiers market for PVC window profiles and offers unmatched cost efficiency. This grade combines carefully selected mineral additives with acrylic components with a high elastomer content. This results in excellent PVC processability, optimised impact resistance meeting the best standards of PVC windows, and a very sturdy assembly of PVC profiles thanks to superior strength of corner welds.

[Altuglas International](#), the world leader in acrylic glass (PMMA) and an Arkema subsidiary, will also present its new acrylic resins for medical applications, [Altuglas®](#) CR 30 and [Altuglas®](#) CR 50. These impact-modified grades feature excellent alcohol and lipid resistance, which minimises the risk of stress cracking due to attack by drugs and disinfectants, together with optimum transparency. They contain neither phthalate nor bisphenol A (BPA), and can withstand radiation sterilisation, and so are suitable for use in medical equipment in contact with drugs such as syringes, blood dialysers, and renal cassettes.

[Altuglas International](#) will present another new development: a new ultra matt PMMA grade with outstanding satin finish, very soft touch, and very high resistance to scratches and fingerprints. This grade can be injection-moulded, extruded or co-extruded without losing any of its properties. It is ideal for the manufacture of sheet (which can then be thermoformed), film, profile and pipe. It is suitable for use in transport, construction, street furniture, and indoor furniture.

Find out about these products and meet the experts on Arkema's stand Hall 6 - C57

(1) To help its customers identify products derived in part or in full from raw materials of renewable origin (over 20% of non-fossil carbon), Arkema has devised the « Arkema Renewables » label. The products' rate of renewable carbon is assessed by an independent body based on the ASTM 6866 standard. Arkema's renewable polymers have already been certified by this independent organisation after being assessed for their renewable carbon content.

A global chemical company, Arkema consists of three businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reported sales of 4.4 billion euros in 2009. Arkema has 13,800 employees in over 40 countries and 7 research centers located in France, the United States and Japan. With internationally recognized brands, Arkema holds leadership positions in its principal markets.

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### **DuPont Performance Polymers Introduces New Cost-effective Materials for Photovoltaics**

October 28, 2010 - Düsseldorf, Germany - Building on the corporation's experience in material innovation within the renewable energy sector industry, DuPont Performance Polymers has tailored its portfolio of thermoplastic materials and design knowledge to the needs of the photovoltaic industry. This includes the introduction of two specific grades of DuPont™ Rynite® PET for photovoltaic applications. The objective behind DuPont Performance Polymer solutions for the photovoltaic industry is to reduce the total cost of manufacturing, assembling and installing photovoltaic systems. By doing so, it is helping the photovoltaic industry reach grid parity faster.

[Delrin®](#) is used for a Concentrating Solar Power (CSP) bearing, which helps the curved mirrors to follow the movement of the sun.

Drawn from its portfolio of high-performance polymers, UV-resistant DuPont™ Rynite® PET resins offer an excellent balance of properties which makes them an ideal candidate for the cost-effective manufacturing of photovoltaic module frames and components. Two specific grades are currently available from DuPont for these applications: Rynite® 935SUV is a 35% glass-fiber/mineral reinforced, UV stabilized grade of polyethylene terephthalate (PET) suitable for injection molding; Rynite® 540SUV is a 40% glass-fiber reinforced, UV stabilized grade of PET suitable for extrusion and injection molding. Both grades combine high stiffness with low warpage and have been specifically developed for long-term outdoor applications. Other DuPont engineering polymers for the photovoltaic sector include flame-retardant DuPont™ Zytel® nylon for junction boxes and inverters, and low-wear/low-friction DuPont™ Delrin® acetal resin for bearings used in sun-tracking mirror installations, for example.

When used in photovoltaic applications, DuPont's polymers can help increase design flexibility for greater ease of assembly and installation; provide an opportunity for functional integration (thereby reducing the overall number of components); and when produced in large

numbers, offer one of the most cost-competitive methods of production through injection molding and extrusion. Moreover, high performance thermoplastics such as Rynite® can offer a high degree of stiffness for structural strength, excellent outdoor performance, high impact resistance, corrosion resistance and good aesthetics. By using Rynite® PET for frames, resistance to ultraviolet rays, heat, wind and significant loads of snow is assured, as well as enhanced durability and a high surface finish.

DuPont™ Delrin®, DuPont™ Crastin® and DuPont™ Zytel® are part of a broad and growing portfolio of products represented by DuPont Photovoltaic Solutions, which connects science and technology from across the company on a global scale to help support the dramatic growth in the photovoltaic industry. To learn more, please visit <http://photovoltaics.dupont.com>

The DuPont Performance Polymers business manufactures and sells Crastin® PBT and Rynite® PET thermoplastic polyester resins, Delrin® acetal resins, Hytrel® thermoplastic polyester elastomers, DuPont™ ETPV engineering thermoplastic vulcanizates, Minlon® mineral reinforced nylon resins, Neoprene® polychloroprene, Tynex® filaments, Vespel® parts and shapes, Kalrez® perfluoroelastomer parts, Vamac® ethylene acrylic elastomers (AEM), Viton® fluoroelastomers, Viton® FreeFlow processing aids, Zytel® nylon resins and Zytel® HTN high-performance polyamides. These products serve global markets in the aerospace, appliance, automotive, consumer, electrical, electronic, healthcare, industrial, sporting goods and many other diversified industries.

DuPont ([www.dupont.com](http://www.dupont.com)) is a science-based products and services company. Founded in 1802, DuPont puts science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Operating in more than 90 countries, DuPont offers a wide range of innovative products and services for markets including agriculture and food; building and construction; communications; and transportation.

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### **[LANXESS At K 2010 - Development Highlights in Polyesters, Polyamides, Rubbers and Rubber Chemicals](#)**

October 27, 2010 - Leverkusen, Germany - “Innovations in Polymers Energized by LANXESS” is the specialty chemical company’s slogan for the international K 2010 plastics fair in Dusseldorf. “This slogan and the design of our stand underline our commitment to innovation. We provide highly effective materials, processes and technologies in responses to the demands of global megatrends and our most important markets. We are also a creative development partner for the associated key industries,” explained Dr. Werner Breuers, member of the Board of Management of LANXESS AG. The stand of this Leverkusen-based specialty chemicals group covers around 1,300 square meters and its generous size and distinctive design provide the Butyl Rubber, Performance Butadiene Rubbers, Technical Rubber Products, Rubber Chemicals, Semi-Crystalline Products, Functional Chemicals and Inorganic Pigments business units with the ideal forum to showcase their developments.

Efficient lightweight construction, replacing metal and thermosetting plastics Exhibits relating to [Durethan](#) polyamides and [Pocan polybutylene terephthalates](#) will concentrate on applications in the automotive, environmental, electrical/electronics and living sectors, with a focus on lightweight construction using easy-flowing, highly filled material grades. The exhibits include numerous components consisting of the exceptionally stiff

polyamide 6 [Durethan DP BKV 60 H2.0](#) EF filled with 60 percent glass fibers, perfect for applications such as a printing press pan, intake manifold and circuit breaker. A highlight that offers a replacement for sheet steel is the polyamide 6 spare wheel recess with integrated reinforcing channels in the Audi A8. The front end of the Audi A8 reveals the opportunities opened up by the use of organic sheets instead of metal in plastic-metal composite technology (hybrid technology) with Durethan. These nylon composite sheets are used to create a thin U-section in the lower beam of the hybrid front end. This results in a weight reduction of 20 percent compared with the equivalent aluminum insert. An innovative material for the electrical/electronics industry is [Durethan DP AKV 30 FN00](#). This flame-retardant polyamide 66 does not contain any halogens or red phosphorus and is ideal for products such as insulation material.

### **Innovations in rubber**

The innovations on display in the rubber and additive field cover the complete range of applications for these materials. One example of a successful development is Therban AT 3400 VP. This low-viscosity HNBR elastomer flows much more easily than previous Therban grades, making it ideal for liquid injection molding, for example. Special new Therban grades are also the material of choice for seals used in the pressure refueling of natural-gas-operated vehicles. This synthetic rubber is resistant to natural gas and retains much greater flexibility in cold conditions than fluororubbers, even at -40 °C. As a result, seals made of this material do not become brittle at the icy temperatures that occur during refueling and thus maintain their sealing effect.

A further process innovation comes in the form of removable adhesive films made from the EVM polymer Levamelt. These can now also be produced in high volumes using blown film extrusion. LANXESS, in conjunction with a manufacturer of extrusion equipment, has demonstrated this using a three-layer film with a functional layer of Levamelt. This EVM polymer is in high demand on the adhesive film market, as its bonding properties can be adapted to substrates of different polarities.

### **LANXESS is the sponsor of this year's "Rubber Street"**

K 2010 will once again feature a "Rubber Street" in Hall 6. LANXESS is the sponsor this year of the initiative, which has been a proven success since it was introduced at "K" in 1983. "As the world's leading manufacturer of synthetic rubbers, we would like to offer companies in the rubber-processing industry a platform to present their new developments," said Breuers.

### **New additives for the polymer industry**

LANXESS is also offering a multitude of new products in its additives range, such as Disflamoll TP LXS 51036, an odor-neutral flame retardant for PVC-based artificial leather products. Other innovations include formulations of the tried-and-tested flame-retardant construction material Bayfomox that can be applied easily and safely as a spray foam. Silica additive 9202 is an excellent alternative to zinc soaps used as an emulsifier for silica in "green tires". Its use means that no zinc finds its way into the environment through tire abrasion. And, unlike zinc soaps, it does not have a plasticizing effect. Further key topics include various alternatives to phthalate-containing bonding agents and plasticizers and developments in the fields of, for example, vulcanization accelerators, crosslinkers, peptizing agents and antidegradants.

### **Successful culture of innovation**

“All the new developments presented by LANXESS at K 2010 reflect the creative culture of innovation we have evolved in our company,” said Breuers. This culture has enabled LANXESS to significantly boost the effectiveness and success of its research and development activities.

LANXESS is a leading specialty chemicals company with sales of EUR 5.06 billion in 2009 and currently around 14,400 employees in 23 countries. The company is represented at 42 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals.

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### **SABIC Ramps up New Business Unit to Provide Advanced Materials Technology Expertise to Middle East and Africa**

October 28, 2010 - Dusseldorf, Germany - At the K Show, the Innovative Plastics strategic business unit of SABIC, announced the establishment of a new business unit to meet growing customer demand for advanced engineering [thermoplastic](#) materials and application development expertise in the Middle East and Africa. This new organization, which is based in Riyadh, Saudi Arabia, demonstrates SABIC’s strong commitment to this increasingly important region – providing customers access to a robust portfolio of more than 40,000 high-performance resins. The new business unit will be led by Richard Crosby, a veteran Innovative Plastics executive and scientist.

“Our innovation in materials and service has been a key differentiator in helping customers be successful in growing and dynamic markets – from understanding their unique requirements to continuously innovating high-performance materials, technologies and services that help give them competitive differentiation,” said Charlie Crew, president and chief executive officer, Innovative Plastics. “Under Richard’s leadership, we are committed to providing the same level of support in the Middle East and Africa to help OEMs and processors in the region create world-class products. This new business unit will enable customers to easily leverage our expansive portfolio of solutions to meet the changing requirements of local and global markets.”

Today’s announcement is the second recent example of SABIC’s focus to bring advanced materials solutions to this important region. The company recently announced a new Application Development Technology Center in Riyadh, which is slated to open in late 2012. The center will offer customers advanced design, material development, conversion processing and part testing.

“Innovative Plastics’ proven success in serving global industries such as appliances, automotive, building and construction, alternative energy and electrical components will enable us to establish and grow new customer relationships as well as create greater market demand in this growing region,” noted Crosby. “For example, the solar energy industry, a major focus area for the Middle East, uses several of our engineering thermoplastics in current photovoltaic applications and will need new innovative materials for future designs. We see an opportunity to add value to the design, development and production of new applications across multiple markets helping our customers achieve their business goals.”

Crosby brings 22 years of extensive experience in business development, marketing and technology to his role. Most recently he served as the general manager of marketing and

technology for the Innovative Plastics' business unit in the Pacific. He holds a doctorate in chemistry from Texas A&M University.

For additional information on SABIC Innovative Plastics' thermoplastic materials portfolio, please go to [www.sabic-ip.com](http://www.sabic-ip.com). For technical product inquiries, please contact us at [www.sabic-ip.com/prtechinquiry](http://www.sabic-ip.com/prtechinquiry).

### **SABIC is Exhibiting at K 2010 in Düsseldorf, Germany in Hall 6, Stand D42**

For K 2010, SABIC's focus is A Culture of Innovation, which means investing in Growth, Technology, Sustainability and Customer Focus. We help our customers to innovate, differentiate their applications and optimize costs by:

- Investing in global expansion;
- Providing the broadest product portfolio that delivers better performance and adds value;
- Developing environmentally responsible products and solutions that provide significant and measurable performance advantages; and
- Working closely with our customers to build long-term, lasting relationships.

### **About SABIC**

Saudi Basic Industries Corporation (SABIC) ranks among the world's top six petrochemical companies. The company is among the world's market leaders in the production of polyethylene, polypropylene and other advanced thermoplastics, glycols, methanol and fertilizers.

SABIC recorded a net profit of SR 9 billion (US\$ 2.4 billion) in 2009. Sales revenues for 2009 totaled SR 103 billion (US\$ 27 billion). Total assets stood at SR 297 billion (US\$ 79.2 billion) at the end of 2009.

SABIC's businesses are grouped into Chemicals, Polymers, Performance Chemicals, Fertilizers, Metals and Innovative Plastics. SABIC has significant research resources with six dedicated Technology & Innovation Centers in Saudi Arabia, Europe, the USA and India. The company operates in more than 40 countries across the world with 33,000 employees worldwide.

The company has 19 world-scale complexes in Saudi Arabia. Elsewhere, SABIC manufactures on a global scale in the Americas, Europe and Asia Pacific. SABIC's overall production has increased from 35 million metric tons in 2001 to 59 million metric tons in 2009.

Headquartered in Riyadh, SABIC was founded in 1976 when the Saudi Arabian Government decided to use the hydrocarbon gases associated with its oil production as the principal feedstock for production of chemicals, polymers and fertilizers. The Saudi Arabian Government owns 70 percent of SABIC shares with the remaining 30 percent held by private investors in Saudi Arabia and other Gulf Cooperation Council countries.

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### **[SABIC Showcases Culture of Innovation at K 2010](#)**

October 27, 2010 - Dusseldorf, Germany - At K 2010, Hall 6, Stand D42, SABIC is showcasing new technologies, expanded capabilities and strong customer relationships that comprise its theme for the show: Culture of Innovation. A key focus is SABIC's sustainability strategy, underscoring the company's commitment to addressing worldwide sustainability issues – including energy and greenhouse gas reduction, water conservation and material efficiency. The SABIC stand features an impressive array of materials from its broad and growing portfolio that enable breakthrough applications across major growth sectors such as healthcare, automotive, electronics, packaging, film and alternative energy.

“Participation at K 2010 allows SABIC to demonstrate our steadfast, long-term commitment to the plastics industry and our customers,” said Khaled Al-Mana, executive vice president, Polymers, SABIC. “Our Culture of Innovation focus drives SABIC's strategy to be the preferred world leader in chemicals and plastics. We are proud to show how investments in our global capabilities and portfolio help us achieve mutual success with our customers.”

“SABIC is investing and driving growth in the global plastics industry by providing material solutions that deliver better performance and added value to our customers,” said Charlie Crew, president and chief executive officer, SABIC Innovative Plastics. “In keeping with our long, rich history of innovation, we continue to expand the boundaries of materials excellence with next-generation products, processing expertise, and advanced application development capabilities to help customers differentiate, compete and grow. Our number-one priority is to support our customers' success.”

SABIC's *Culture of Innovation* theme for K 2010 is built on four strategic pillars: growth, technology, sustainability and customer focus.

## 1. Growth

To meet customers' requirements today and tomorrow, SABIC continues to invest in the expansion of global production capacity and to add new technology resources in key sectors.

- **SABIC's Expanded Capacity** – In 2009, the company added more than one-million tons of polymer capacity at its plants in Sharq and Yansab in Saudi Arabia; expanded bi-model [high-density polyethylene \(HDPE\)](#) production in Germany; and opened a new [low-density polyethylene \(LDPE\)](#) facility in the United Kingdom (U.K.). Considerable capacity will be added when SABIC's plants in Saudi Kayan and Al-Jubal, Saudi Arabia come online in the near future.
- **SABIC® PP Compounding Capabilities** – The company will add state-of-the-art specialty PP compounding to its Bay St. Louis, Miss., site in the first quarter of 2011 to satisfy demand from the North American automotive sector. The new Genk, Belgium facility, the largest greenfield PP compounding plant ever built in Europe, will supply [polypropylene \(PP\)](#) compounds to Europe and Stamax® composites to Europe and Asia Pacific.
- **Ultem® Polyetherimide (PEI) Resin Production Facility** – SABIC Innovative Plastics new Ultem PEI resin production facility in Cartagena, Spain opened in September and will provide customers with enhanced supply reliability. Further, sophisticated technology and scalable capacity for producing ultra-high-temperature Extem® resin grades and specialty intermediates (anhydrides) have been incorporated.
- **LDPE Plant** – SABIC's Teesside, United Kingdom, plant has a name plate capacity of 400 kt/year (which makes it the largest plant of its kind in the world). The material

targets growing customer needs for packaging applications. This capacity enables SABIC to ensure a reliable and long-term supply of LDPE.

- **Exatec\* Plasma Coating Technology** – There has been an upgrade to the SABIC Innovative Plastics’ businesses plasma coating capabilities at its United States global technology center in Wixom, Mich. The upgrade expands plasma coating capabilities for Lexan\* polycarbonate (PC) glazing solutions. These enhanced plasma coatings have been shown to improve the scratch and abrasion resistance of Lexan PC glazing.

## 2. Technology

SABIC continues to focus on the development of new and future innovations, giving customers a broad and growing portfolio of materials technologies. These materials deliver better performance and added value by reducing system costs, opening up new design opportunities, and driving market penetration and growth. Key technologies include:

- **Polyethylene Terephthalate (PET) Tape Fabric** – Jointly developed by SABIC and the Austrian engineering company, Starlinger & Co. Gesellschaft m.b.H. The new fabric can be made with material input that is reduced drastically, compared with a woven fabric made from filaments, while the high-quality chemical and physical characteristics of PET are maintained.
- **Extem Resin Blends** – A new, incredibly tough family of high-end resin blends for electrical applications, with one of the industry’s highest continuous use heat performance meeting UL 746B requirements up to 240C.
- **SABIC PP Flowpact Copolymers** – Delivering measurable benefits to converters, particularly for thin-wall packaging. They offer shorter cycle times, lower energy costs and increased down gauging possibilities, and have proven successful in the high-end food packaging sector.
- **Ultem PEI Composite Aerospace Board (CAB)** – A superior alternative to thermoset aramid honeycomb composites, co-developed and manufactured with Crane & Co. Advantages include much faster cycle times and the ability to be “re-skinned” to lengthen its useful life.
- **Light Emitting Diode (LED) Portfolio of Advanced Resin Technologies** – Including flame-retardant (FR) Lexan PC resin enabling thin-wall transparent lighting and diffusion applications with UL94 V0 compliance at 1.5 mm.
- **SABIC LD/LLDPE** – A combined concept with multi layer film, this material enables converters of consumer packaging to reduce material usage considerably while optimizing performance on their equipment. Customers benefit from cost savings, improved down gauging opportunities, higher processing speeds, and lower energy consumption.
- **Conductive Noryl GTX\* 98 Polyphenylene Oxide (PPO) Resins** – Allows automotive designers greater freedom to create larger top-quality, high-precision body panels than previously feasible. They cut the coefficient of thermal expansion (CTE) by 20 to 40 percent vs. previous grades for increased dimensional stability and improved gap and flush management.

## 3. Sustainability

Global sustainability issues are at the core of SABIC’s business strategy, built on the company’s commitment to maximize the usefulness of valuable natural resources. Customers want solutions that help reduce their environmental footprint by cutting energy consumption

during manufacturing; that help reduce the weight of their products or make them thinner; and that are more easily recycled or include recycled content. SABIC's product portfolio, technological expertise and history of innovation enable the development of materials that can help customers tackle a wide variety of environmental issues.

Sustainability examples announced here today include:

- **SABIC Innovative Plastics' Sustainability Solutions Portfolio** – The company is announcing its expanded Sustainability Solutions portfolio and new validation process for sustainable materials, designed to help customers worldwide lower their carbon and energy footprints, eliminate waste, and ensure strict compliance with global environmental regulations. All products meet an appropriate third-party standard or, in the absence of a recognized standard, pass an evaluation of their environmental benefits using a rigorous Sustainable Product Scorecard developed with top environmental sustainability consulting firm, GreenOrder.
- **SABIC PP Qrystal** – Delivering new, improved levels of optical performance and energy savings for converters. It can be processed at significantly lower temperatures than comparable grades without any loss of transparency, delivering energy savings of as much as 15 percent.
- **Post Consumer Recycled (PCR) Materials** – New significantly expanded array of SABIC Innovative Plastics PCR additions to the company's successful Valox iQ\*, Xenoy iQ\*, and Lexan EXL PCR product lines include Cycloy\* PCR resins, Noryl\* Classico PCR resins and three new grades of Lexan EXL resins.
- **SABIC Vestolen A RELY** – A new standard for HDPE high-pressure pipe applications enabling converters to achieve considerable energy savings and supporting environmentally responsible trenchless pipe installation. SABIC also developed a state-of-the-art Strain Hardening test for evaluating the crack resistance behavior of HDPE pipes. This methodology avoids the use of detergents that can pose an environmental hazard.
- **SABIC LDPE Ultra Melt Strength (UMS) Line** – Provides the opportunity to lower the density of foam applications considerably while maintaining the same mechanical properties and improving thermal performance. This outstanding combination of properties results in noticeable material and energy savings.
- **New Ultra-Stiff Lexan Thermoclear\* Multi-wall PC Sheet** – Has the capability to withstand wind and snow loading pressures of up to 2200 N/m<sup>2</sup> for roofing and cladding, provides outstanding design freedom for large architectural applications such as sports stadiums. It offers exceptional stiffness, lower weight vs. glass, and two-sided ultraviolet (UV) coating for long-term durability.

#### 4. Customer Focus

To help customers innovate, differentiate their applications, and optimize manufacture, SABIC works collaboratively throughout the application development process. A dedicated local team presence around the world enables the company to meet unique customers' needs in a broad range of geographies and industries.

Customer innovation seminars will be held at SABIC's booth during the course of the K show. These seminars are focused on educating and assisting customers in solving real-world challenges with SABIC materials technologies and innovations to help customers grow their businesses. Seminars range from metal replacement; reducing weight in automobiles;

maximizing sustainability opportunities; and high-performance materials for the aircraft and rail markets to the use of thermoplastics in photovoltaics; innovative solutions using Lexan polycarbonate sheet; resins for the healthcare industry; and more.

The full program is available at [www.sabic.com/K2010](http://www.sabic.com/K2010) and [www.sabic-ip.com](http://www.sabic-ip.com).

### SABIC's *Culture of Innovation* Lounge

Underscoring the theme of innovation, the SABIC stand is a unique, double-decker, 1,200 m<sup>2</sup> (12,917 ft<sup>2</sup>) design named *Culture of Innovation* lounge. The stand is based on the structure of a molecule as the core building block of existence and SABIC materials were used in the construction. For example, the new grade of Lexan SG305-OB PC sheet is used for the interior and exterior walls of the stand to illuminate the dynamic LED light band flowing along the top edge of the structure. This unique product offers both uniform light diffusion to eliminate LED "pinholes" and a view of light sources, and superior light transmission for exceptional optical brightness at lower energy costs.

### About SABIC

Saudi Basic Industries Corporation (SABIC) ranks among the world's top six petrochemical companies. The company is among the world's market leaders in the production of polyethylene, polypropylene and other advanced thermoplastics, glycols, methanol and fertilizers.

SABIC recorded a net profit of SR 9 billion (US\$ 2.4 billion) in 2009. Sales revenues for 2009 totaled SR 103 billion (US\$ 27 billion). Total assets stood at SR 297 billion (US\$ 79.2 billion) at the end of 2009.

SABIC's businesses are grouped into Chemicals, Polymers, Performance Chemicals, Fertilizers, Metals and Innovative Plastics. SABIC has significant research resources with six dedicated Technology & Innovation Centers in Saudi Arabia, Europe, the USA and India. The company operates in more than 40 countries across the world with 33,000 employees worldwide.

The company has 19 world-scale complexes in Saudi Arabia. Elsewhere, SABIC manufactures on a global scale in the Americas, Europe and Asia Pacific. SABIC's overall production has increased from 35 million metric tons in 2001 to 59 million metric tons in 2009.

Headquartered in Riyadh, SABIC was founded in 1976 when the Saudi Arabian Government decided to use the hydrocarbon gases associated with its oil production as the principal feedstock for production of chemicals, polymers and fertilizers. The Saudi Arabian Government owns 70 percent of SABIC shares with the remaining 30 percent held by private investors in Saudi Arabia and other Gulf Cooperation Council countries.

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### **[BASF Develops Innovative Structural Technology for Automotive Seating](#)**

October 26, 2010 - Wyandotte, MI - Combine innovative materials, development processes and partners—and a healthy dose of hard work—and you might just end up with an innovative application. That is precisely what happened when BASF turned its focus to

automotive seating. Result: the first highly styled seating to incorporate a material-saving, weight-saving thermoplastic seat back frame.

BASF, an experienced automotive supplier, saw the potential to simplify the back frame assembly by converting the structure to thermoplastic materials.

By doing so, BASF was able to develop a seat back that is very thin, and contoured to the shape of the human form. The new seat back integrates the seat frame and back panel into one thermoplastic structure. It enables the reduction of foam, and simplifies the trimming process. Further integration potential exists with other seating components, such as lumbar support, and heating and cooling modules. BASF foresaw other innovative styling opportunities in view of textures, colors and surface appearance made possible by thermoplastics to complement the interior design. Easy and cost-efficient contouring, another benefit of designing with thermoplastics, also facilitated the providing of ergonomic support for the human form, while using thinner frames that contribute to the reduction of overall vehicle mass.

Undertaking an exhaustive process of conversations with automakers, examination of industry trends, and reviews of concept vehicles from around the globe, BASF provided itself with a reality-check on the idea of the plastic seat back frame. One considerable challenge was that the thinner, lighter back frame would have to be able to withstand the high crash energy demands required of automotive seats.

### **Innovative material choice**

Continuous fiber reinforced thermoplastics (CFRTs) represent the next step in the advance of thermoplastics' structural capabilities. Although the use of CFRTs had been established in aerospace and defense applications, by the time BASF began its own research on the materials, CFRTs had rarely been used in automotive applications. But, with serious development efforts, the benefits were there for the reaping. CFRTs can produce a very stiff, strong, lightweight end product that can be efficiently manufactured. They have higher modulus, impact strength and overall durability than that available from traditional filled thermoplastics. At the end of a months-long technical review and brainstorming of different concepts, BASF decided to pursue development of a thermoplastic seat back comprised of continuous fiber reinforcements overmolded with [Ultramid Polyamid 6 resin](#) (PA 6). The inserts would provide the necessary structural integrity when reinforced with PA 6 resin, while injection-molding the back would allow for the necessary feature integration, contours, and styling.

### **Innovative development process**

“In order to design effectively with any material, accurate CAE tools are required,” said Peter A. Zorney, Advanced Development, BASF Corporation.

“Unfortunately, the industry did not seem to have the experience in utilizing FEA tools like LS-Dyna for continuous fiber materials, let alone for a combination construction of injection-molded PA resin and continuous fiber materials.”

BASF spent almost two years gathering data on continuous fiber materials through extensive testing and employment of its [Ultrasim](#)<sup>TM</sup> numerical material model, a versatile and flexible CAE tool developed for the demands of innovative applications. The Ultrasim technology—referred to as an integrative simulation—combines traditional tooling and process data with

experimental data obtained from a special high-speed measuring device, itself developed by BASF. The technology thereby yields optimum part and process design.

“We took state-of-the art characterization of our materials and added state-of-the-art characterization of continuous fiber materials in order to accurately simulate dynamic crash events. We are now able to design automotive seat structures, and other structures, using our computer tools.

This allows us to efficiently design complex, CFRT reinforced structures to withstand the very demanding requirements of automotive seating,” added Zorney.

### **Innovative partners**

BASF partnered with Performance Materials Corporation, Camarillo, California, a forerunner in the development and manufacture of CFRT products. The continuous fiber materials were tested and retested and the results were compared to FEA predictions.

“Using these leading edge analysis techniques, we have worked closely with BASF to develop both a CFRT material and a part design, which not only is compatible in the injection over-molding process, but can provide the necessary structural performance in a cost effective thin and lightweight seat application as demonstrated in actual crash tests,” said Thomas Smith, CEO of Performance Materials.”

During the development of the injection-molded [Ultramid® PA 6](#) resin technology, BASF also sought out a seating supplier with both the technical capability to integrate the back frame into a seat and the innovative spirit to invest in the new technology. Faurecia Automotive Seating was that supplier. The end result was the SUSCO 1.5 seat, which will be displayed at the October K 2010 show in Düsseldorf, Germany. BASF and Faurecia are in the process of executing development contracts with key automakers to ready the technology for series production expected in 2014.

“BASF’s new technology has helped Faurecia push our seat technology into the next generation of automotive seating,” said Thilo Ludewig, Faurecia Vice President Research & Development. “BASF is an excellent partner to work with—innovative, technically astute, and themselves willing to invest in game-changing technologies.”

The technology has already yielded a significant advance in automotive seating, and BASF plans to apply its new predictive technology for CFRT both in additional automotive applications, as well as other industries.

For more information contact:

Kathy Dennis

BASF Corporation

Tel: (973) 245-6288

E-mail: [kathy.dennis@basf.com](mailto:kathy.dennis@basf.com)

### **About Faurecia**

Faurecia is one of the world's leading (#6 worldwide) automotive equipment suppliers with four key Business Groups: Automotive Seating, Emissions Control Technologies, Interior Systems and Automotive Exteriors. In 2009, the Group posted pro-forma sales of 11.3 billion euros, including Emcon Technologies and Plastal Germany. It employs 62,000 people in 32

countries at 200 sites and 33 R&D centers. Faurecia is listed on the NYSE Euronext Paris stock exchange. For more information, visit: [www.faurecia.com](http://www.faurecia.com)

### **About Performance Materials Corporation**

Performance Materials Corporation (PMC) is an innovative developer and manufacturer of continuous Fiber Reinforced Thermoplastic (CFRT®) materials, components and sub-assemblies. These compounded materials offer high strength and stiffness to weight ratios and can be used to improve structural performance in various applications. PMC has business units which focus on basic materials, industrial, medical, recreation, computing and automotive applications. PMC is privately held.

To get “the Material Edge,” visit [www.performancematerials.com](http://www.performancematerials.com).

### **BASF - The Chemical Company**

BASF Corporation, headquartered in Florham Park, New Jersey, is the North American affiliate of BASF SE, Ludwigshafen, Germany. BASF has approximately 16,000 employees in North America, and had sales of \$13 billion in 2009. For more information about BASF’s North American operations, or to sign up to receive news releases by e-mail, visit [www.basf.us](http://www.basf.us).

BASF is the world’s leading chemical company: The Chemical Company. Its portfolio ranges from chemicals, plastics and performance products to agricultural products, fine chemicals and oil and gas. As a reliable partner, BASF creates chemistry to help its customers in virtually all industries to be more successful. With its high-value products and intelligent solutions, BASF plays an important role in finding answers to global challenges, such as climate protection, energy efficiency, nutrition and mobility. BASF posted sales of more than €50 billion in 2009 and had approximately 105,000 employees as of the end of the year. Further information on BASF is available on the Internet at [www.basf.com](http://www.basf.com).

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### **[Polymax Elastomer Technologies Introduces High Heat TPE to European Market at K Show In Germany](#)**

October 19, 2010 - Dusseldorf, Germany - At their first [K Show](#), [TPE \(thermoplastic elastomer\)](#) producer Polymax Elastomer Technology will be introducing to the European market for the very first time, their new high heat (up to 302°F or 150° C) TPE. This new TPE offering is ideally suited for automotive and other high temperature applications. Polymax will be highlighting this grade at their K Show Stand/Booth #F61 in Halle/Building 08b.

With a Shore A hardness of 82, the new Maxelast® TPE grade offers users a product that is easy to process, and provides a finished product that is both esthetically pleasing and durable.



At this show, Polymax is offering its TPEs into European and other world markets beyond Asia and North America. In North America, this large and well-respected TPE producer has a partnership with Alliance Polymers & Services in Romulus, MI [www.apstpe.com](http://www.apstpe.com). Polymax manufactures 7 families of Maxelast TPEs at their world headquarters in Nantong (near Shanghai) China. The firm is looking into building a new manufacturing site in North America.

For further information on this new grade and other Maxelast products in Europe, China and the Far East, inquirers should contact: Marketing Department, Polymax Elastomer Technology Co., Ltd., 698 Changtain Road, Gangzha District, Nantong, Jiangsu, China 22601. Tel: 86-513-80113188. Fax: 86-513-80113173. Email: [tlxu@polymax.com.cn](mailto:tlxu@polymax.com.cn). Web: [www.polymax.com.cn](http://www.polymax.com.cn). In North America, go to [www.apstpe.com](http://www.apstpe.com).

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### **No More Distortion - On the Occasion of the K 2010: New Dimensionally Stable High-Temperature Grade in the Ultrason PESU Family**

October 6, 2010 - With its new Ultrason<sup>®</sup> E Dimension, [BASF](http://www.basf.com) has succeeded in combining high dimensional stability and ease of processing where previously this was not possible: in the market for high-temperature resistant thermoplastics. The new member of the [polyethersulfone \(PESU\)](#) family exhibits not only very high stiffness at temperatures between 120 and 220 °C, but also exceptional dimensional stability. Nevertheless, its viscosity is still so low at processing temperatures that it can fill complex injection molds reliably. Thanks to the good flow characteristics, it has also been possible to increase the glass fiber content beyond that achievable with conventional PESU grades. This makes the new material a strong – and economical – alternative to [polyetheretherketone \(PEEK\)](#), for instance.

#### **New formulation resolves contradiction: stiff, well-flowing and dimensionally stable**

While stiff, semi-crystalline high-temperature polymers such as PEEK or [PPS \(polyphenylene sulfide\)](#) often warp during injection molding, the dimensionally stable amorphous thermoplastics such as PESU are usually more difficult to process. In both product groups, the challenges become more pronounced when glass fibers are incorporated. Whoever tried to increase the stiffness of high-temperature plastics quickly found that there were limits.

A new component in a classic Ultrason E formulation now contributes to increased stiffness at elevated temperatures while simultaneously improving the flow characteristics of the PESU melt significantly without noticeably compromising the dimensional stability of the material: The elastic modulus of Ultrason E Dimension still achieves values of over 10,000 MPa even at 120 °C, making it comparable to PEEK or PPS compounds. The new Ultrason's coefficient of thermal expansion is about as high as that of aluminum, which is an enormous achievement for a plastic. Furthermore, in contrast to semi-crystalline polymers, the new material exhibits almost linear and isotropic thermal expansion between 25 and 200 °C. At similar performance, the new Ultrason also frequently represents a considerably more economical alternative to other high-performance polymers.

### **Head-to-head with aluminum**

Compared to aluminum, the new plastic can exploit its greater ease of processing, since the plastic part does not require subsequent finishing with a drill or milling tool. This translates into economic advantages over a metal counterpart. The material offers potential, e.g., for use in the form of pistons, switches and gears that come into contact with hot oil and must still function reliably above 140°C. The field of application is in no way limited to the automotive sector: Ultrason E Dimension is also suitable for food contact.

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### **[DuPont Packaging Experts to Speak at Pack Expo 2010](#)**

October 5, 2010 - Wilmington, Delaware – DuPont Packaging experts [Barry Morris, Ph.D.](#), [and Terry Kendig](#) will be featured speakers at an ongoing DuPont symposium for packaging professionals to be held during Pack Expo 2010 show in Chicago from Oct. 31 through Nov. 3, 2010. Morris will present on reducing package sealing failure and Kendig will discuss how to meet consumer needs for convenience through easy-peel lidding. The presentations will be delivered in the DuPont meeting room, McCormick Place, South Hall, Room 402B.

DuPont also is sponsoring the new Pack Expo pavilion "[Project 2020 - The Consumer Experience](#)," which will examine the consumer demands expected to drive packaging innovation 10 years from now. Project 2020 is about pushing the boundaries of packaging and anticipating what will drive brand owner purchasing decisions in the future. The series of expert technical presentations complements this sponsorship.

"As a specialty packaging materials supplier, our goal is to foster better understanding of the way expertise, materials and manufacturing methods come together for innovation in consumer packaging," said Yasmin Siddiqi, global packaging marketing director. "Every day, DuPont experts are asked to respond to market drivers, such as source reduction and cost efficiency, increased convenience and improved food protection. We hope to share our know-how as widely as we can during the show. In addition to the scheduled expert presentations, DuPont will be hosting a gathering room for packaging engineers interested in exchanging best practices and learning more about available specialty materials."

Morris is a widely published expert on film extrusion and polymer melt behavior. He is a long-time member of TAPPI, a Fellow of the Society of Plastics Engineers (SPE) and a member of the board of directors of the SPE Flexible Packaging and Extrusion Divisions. Kendig is DuPont's resident expert on lidding films, holding several patents for innovative film and adhesion combinations. His expertise is frequently sought by developers of new convenience packaging, and he has contributed to award-winning designs for brand leaders.

Morris and Kendig will be making formal presentations to registered attendees on a regular schedule during show hours, with time for interactive Q&A. To see a video preview of their presentations, learn more about their planned topics and presentation schedule, or register for available seating, visit [packexpo.dupont.com](http://packexpo.dupont.com).

[DuPont Packaging](#) is an innovations leader in flexible packaging materials and a long-time sponsor of the DuPont Awards for Packaging Innovation, the packaging industry's premier independently judged excellence award. DuPont specialty resins are problem-solvers in a variety of sealing, lidding, and multi-layer film extrusion applications helping increase packaging effectiveness and efficiency around the world.

DuPont ([www.dupont.com](http://www.dupont.com)) is a science-based products and services company. Founded in 1802, DuPont puts science to work by creating sustainable solutions essential to a better, safer, healthier life for people everywhere. Operating in more than 90 countries and regions, DuPont offers a wide range of innovative products and services for markets including agriculture and food; building and construction; communications; and transportation.

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### **[Kraton Polymers and SO.F.TER. Develop a Lighter-weight, Higher-performance, Lower-cost, and More Environmentally-sustainable Solution for Slush Molded Interior Soft Skins](#)**

October 2, 1020 - Houston, TX - [Kraton Performance Polymers, Inc.](#) (NYSE: KRA), a leading global producer of styrenic block copolymers or "SBCs," and SO.F.TER. SPA, compounder specialized in the production of tailor-made thermoplastic elastomers and engineering solutions, in response to the demands of the automotive industry for lighter-weight, higher-performance, lower-cost, and more environmentally-sustainable solutions, announce the development of a new SBC-based alternative for slush molded interior soft skins.

Slush molding is a specialized processing operation traditionally designed for [polyvinyl chloride \(PVC\)](#) based compounds to produce the interior surface of automobiles such as instrument panel skins, door panels, airbags and consoles.

"[Kraton Polymers](#) and [SO.F.TER.](#) formed a strategic alliance to leverage the leading innovation and scientific capabilities of both companies. This resulted in the development of a superior and more environmentally-friendly alternative to PVC and thermoplastic [polyurethanes \(TPU\)](#)," said Michael Oberkirch, Vice President, Advanced Materials at Kraton Polymers.

This development provides a major technology and performance leap for the automotive industry. Manufacturers can achieve significant improvements in low-temperature performance, fogging, and recyclability while still using existing slush molding equipment and standard processing conditions. An additional benefit is lowered manufacturing costs due to reduced service temperatures and decreased processing time.

"Our new product provides a 30 to 40% reduction in material weight, better aging properties, and improved soft touch compared to existing materials. These benefits help automotive manufacturers reduce the weight of vehicle components, while still enhancing aesthetics and performance," added Oberkirch. "This is another example of innovation and collaborative

customer relationships leading to a specialized product solution designed to meet ever-increasing market needs," he concluded.

For more information about this superior alternative for slush molded interiors, please contact Christian Kafka, Global Market Development Manager, Kraton Polymers, at [christian.kafka@kraton.com](mailto:christian.kafka@kraton.com), or Riccardo Meucci, Sales Director of SO.F.TER. TECNOPOLIMERI, at [riccardo.meucci@softerspa.com](mailto:riccardo.meucci@softerspa.com). To see, touch, and learn more about our new technology, please visit both companies at the [2010 KSHOW](#) in Dusseldorf, Germany from October 27 – November 3, 2010. Visit [Kraton Polymers in Hall 6, Booth C80](#), or [SO.F.TER. in Hall 6, Booth A58](#).

### **About Kraton**

Kraton Performance Polymers, Inc., through its operating subsidiary Kraton Polymers LLC and its subsidiaries, is a leading global producer of engineered polymers and, we believe, the world's largest producer of styrenic block copolymers ("SBC's"), a family of products whose chemistry was pioneered by us almost fifty years ago. SBC's are highly-engineered thermoplastic elastomers, which enhance the performance of numerous products by delivering a variety of attributes, including greater flexibility, resilience, strength, durability and processability. Our polymers are used in a wide range of applications, including adhesives, coatings, consumer and personal care products, sealants and lubricants, and medical, packaging, automotive, paving, roofing and footwear products. We currently offer approximately 800 products to more than 700 customers in over 60 countries worldwide, and are the only SBC producer with manufacturing and service capabilities on four continents. We manufacture products at five plants globally, including our flagship plant in Belpre, Ohio, as well as plants in Germany, France and Brazil, and a joint venture plant operated in Japan.

Kraton, the Kraton logo and design, and the "Giving Innovators their Edge" tagline are all trademarks of Kraton Polymers LLC.

### **About SO.F.TER.**

SO.F.TER. SPA develops and produces polymeric compounds for the manufacturing industry and is among the few specialists whose range of business goes from thermoplastic elastomers, to thermoplastic vulcanizates, to engineering plastics. Thanks to its world-class technological know-how SO.F.TER. can offer customized and integrated solutions, with a strong focus on the automotive, home appliances, building, electrical/electronic, footwear and sport industries. The SO.F.TER. Group has its headquarters in Forli, Italy, with two production units in Mexico and Brazil. Products and Brands include **Thermoplastic Elastomers:** Forprene® (TPV), Forflex® (TPO), Laprene® (SEBS), Sofprene® (SBS), Sofpur® (TPU), Heraflex® P (TPO), Forgrin®, Terra® (TPE for turf infill), Pavprene® (bitumen modifier) and **Engineering Plastics:** Polifor® (PP), Pibifor® (PBT), Nylfor® (PA6, PA66), Abistir® (ABS), Stirofor® (HI-PS), Cabofor® (PC), Blendfor® (PC/ABS), Norfor® (PPO), Sanfor® (SAN). For more information about SO.F.TER. visit [www.softerspa.com](http://www.softerspa.com).

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### **[New Special ABS Terluran for Electoplating](#)**

September 28, 2010 - Upon the occasion of the international plastics trade fair K 2010, BASF will be introducing a new member of its ABS product line ([acrylonitrile butadiene styrene copolymer](#)) that was specifically developed with an eye towards the requirements made in electroplating. This material goes by the name [Terluran® BX 13074](#) and is intended

particularly for plumbing fixtures, the household sector and automotive construction. The first components made with the new product will be showcased at BASF's trade fair stand in Düsseldorf in October.



Terluran<sup>®</sup> BX 13074 has a very broad processing window when it comes to its residence time and the temperature of the electroplating bath. It can be used in all commercially available baths, and its very high reliability translates into a lower reject rate.

Basic studies pertaining to the metal coating of the new material by means of electroplating were conducted at the Kunststoff-Institut Lüdenscheid (Lüdenscheid Plastics Institute). The properties of this new ABS grade are remarkable: for instance, the peel strength of Terluran<sup>®</sup> BX 13074 achieves very high values and the material also passes the stringent adhesion test on a complex grid plate. Moreover, this new electroplating grade also exhibits the well-known flow and filling properties of the major Terluran<sup>®</sup> standard grades made by BASF and, like these, is produced at the large world-scale plant in Antwerp, Belgium. ABS is the plastic used most frequently for electroplating.

The first high-quality operational plates for flushing mechanisms have already been manufactured from the new Terluran<sup>®</sup> by Werrit, located in Buchholz (Westerwald, Germany). Other possible applications in the realm of sanitary engineering are water faucets, shower heads and other shiny surfaces in bathrooms and kitchens. In the automotive sector, radiator grilles and trim strips are electroplated, and the method is also employed in jewelry production.

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### **[Test Methods for Composite Materials Seminar Dates Announced](#)**

September 16, 2010 - Madison, NJ - Seminars For Engineers announces, in association with Wyoming Text Fixtures, Inc., the 2010 dates for its new seminar "Test Methods for Composite Materials." Composite materials, whether for use in high performance structures or in commodity applications, present many unique mechanical testing problems. This two-day seminar will focus on the proper selection of a test method for each specific application, from the many methods currently available.

Test Methods for Composite Materials

November 10 - 11, 2010 - Miami, FL

Time: Seminar hours are from 9:00 am to 5:00 pm each day unless otherwise indicated in the course description.

Instructor Dr. Donald F. Adams, president and founder of Wyoming Text Fixtures, Inc., is an expert in the field of composite materials with almost 50 years of experience in the industry. Prior to founding Wyoming Test Fixtures in 1988, Dr. Adams was a professor of mechanical engineering at the University of Wyoming where he founded and directed their Composite Materials Research Group.

Concepts covered in the seminar include: Introduction to Composite Materials Testing; Properties of Orthotropic Materials; Available Test Methods and Standards; Tensile Testing; Compression Testing; Flexure Test Methods; Shear Test Methods; Multi-Axial and Fracture Toughness Testing; Testing of Fibers, the Matrix, and the Interface; Fatigue, Impact, and Creep Testing; Testing Equipment and Data Reduction

For more information, contact Seminars For Engineers at [info@SeminarsForEngineers.com](mailto:info@SeminarsForEngineers.com), phone 1-800-755-2272 (USA) or visit <http://www.seminarsforengineers.com/comptest>

### **About Seminars For Engineers**

Seminars For Engineers, headquartered in Madison, New Jersey USA, was founded in 2003. Focusing on specialized engineering topics, these two day technical courses are designed to disseminate the most current and comprehensive information available and provide practical problem solving techniques for a broad spectrum of manufacturing and R&D professionals. Topics ranging from Fastening Technology and Bolted Joint Design, Fundamentals of Injection Mold Design and Sealing Technology for Packaging Processes to Understanding Web Handling Systems, and Composite Materials Design, Testing & Fabrication are taught by the foremost authorities in their fields. Company website:

[www.SeminarsForEngineers.com](http://www.SeminarsForEngineers.com)

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### **[Nissei ASB Launches Two-Step Reheat Stretch-Blow Machine for Wide Mouth Hot-Fill PET Containers](#)**

*Unique Technology to Meet Growing Demand for Glass Replacement of Hot-Fill Foods*

September 15, 2010 - Atlanta, GA - Nissei ASB Co., the wholly-owned U.S. subsidiary of Japan's Nissei ASB Machine Co. Ltd., has introduced the HSB-6M, a new two-step reheat stretch-blow molding machine for the production of wide mouth hot-fill [PET](#) containers. The company will demonstrate the new machine during K 2010, the 18th International Trade Fair Plastics + Rubber, Oct. 27-Nov. 3, in Dusseldorf, Germany (Hall 14 Booth B38).



In Europe and the U.S., the company foresees strong global growth for wide mouth hot-fill PET jars as a replacement for glass for a range of hot-fill foods such as sauces, pickles, jams, and jelly. Many of these products require filling at high temperatures (90 deg C) and until now glass has been the only viable option. This technology will enable production of PET jars which can be filled at temperatures above 90 deg C (194 deg F). Hot-fill PET jars will yield a major weight reduction and many sustainability advantages over glass including reduced freight costs and lower carbon footprint, according to ASB.

“The market for wide mouth hot-fill food containers appears ready to make the conversion from glass to lightweight PET and we have unique technology that will meet the demand of this high-growth segment,” said Jamie Pace, vice president and general manager of Nissei ASB Co.

The HSB-6M can produce 300ml to 600ml hot-fill PET jars with standard 63-mm-diam. twist-off neck finishes at a nominal production rate of 6000 jars per hour. The new two-step reheat system incorporates the company’s “double blow molding” technology which has been successfully used in Asia for more than 15 years for the production of narrow-neck hot-fill bottles. In the double blow molding production system, the preform is first blown in a primary mold and then undergoes high-temperature conditioning before passing to the final, secondary mold.

Along with the HSB-6M blow molding unit, ASB is launching a matching injection molding machine for preform production. The PM-170/111M model is a preform molding machine which injection molds preforms for either jars or bottles. Additionally, ASB is introducing the CM-6000M model neck crystallizer. This new machine takes the injection molded preforms and crystallizes the necks to enhance the heat-resistant properties of this part of the preform. This crystallization method reduces weight by as much as 10% to 20% compared to conventional necks produced by other competitive systems. These two machines are placed upstream from the HSB-6M blow molding machine and round out the dedicated production line for hot-fill PET jars.

ASB is selling the complete line globally and expects 10 lines to be commercially operational within 12 months.

#### **About Nissei ASB Co.**

Nissei ASB Company in Atlanta, a wholly-owned subsidiary of Japan’s Nissei ASB Machine Co. Ltd., based in Nagano Prefecture, is a leading manufacturer of one-step and two-step stretch-blow molding machines for the production of PET containers for the food, beverage, cosmetic, and pharmaceutical industries. The Atlanta office is responsible for all U.S. & Canadian territories and offers sales and marketing, technical service, spare parts, container design, demonstration machines, and customer training. In addition to the main office and plant in Japan, Nissei has manufacturing in Mumbai, India, and Shanghai, China. The company has 80 installation sites and more than 550 machines installed in the U.S. and Canada. For more information, call (404) 699-7755 or visit [www.nissei-asbus.com](http://www.nissei-asbus.com).

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**[Borealis Shows Pioneering PP Solutions at IZB 2010 Auto Supplier Show](#)**

September 14, 2010 - Pioneering developments in high performance [polypropylenes](#) under the bonnet and on the vehicle exterior, to be shown at IZB in Wolfsburg, Germany on October 6-8, demonstrate how materials made by Borealis, a leading provider of chemical and innovative plastics solutions, are gaining a foothold in an increasing number of automotive applications. The focus of these solutions is not only on aesthetics and unit cost savings but also reflects the more recent focus in automotive parts engineering on weight reduction and fuel efficiency.



Air intake manifolds (AIMs) - Ever since plastics began substituting cast metal in cars over 20 years ago, glass reinforced polyamides have been so far the material of choice for this extremely demanding application. With its [Xmod™ GB306SAF](#) material, Borealis achieved a paradigm shift in this area. For the first time, AIMs are being moulded in a high-performance glass reinforced Borealis PP compound. The Xmod AIMs are used for the 1.4L and 1.6L Volkswagen engines in its Golf, Polo, Seat and Skoda models.

Xmod contributes to improved production cost-efficiency and lower overall production costs, thanks to its lower processing temperatures and lower density, which enable weight reductions of up to 15% and less energy usage.

Daimler Smart Fortwo - Originally equipped with vertical body panels injection moulded in a blend of [polycarbonate](#) and thermoplastic polyester (PC/PBT), Daimler's Smart Fortwo is now clad in Borealis' [Daplen™ ED230HP](#) elastomer modified PP (TPO). The switch was made in order to meet new specifications regarding improved environmental performance and higher quality aesthetics. The new parts weigh 15% less than their predecessors. Daplen also more than satisfies requirements relating to weather resistance paint (clear coat) adhesion, part dimensional stability and production economics.

VW Touareg bumper fascias - Daplen grades have also been chosen for bumper fascias on new VW vehicles. [Daplen VB4411](#), a TPO containing 10% mineral filler, was chosen for the VW Touareg, where the customer called for a material with very low thermal expansion and a solution that would yield parts with "zero gap" dimensional tolerance.

VW Caddy bumper fascia- Another mineral-filled grade, Daplen EH104AE, was selected for the latest version of the Caddy small van, meeting requirements for high flow and reduced cycle time. Since the fascia is used unpainted, there had to be no evidence of "tiger stripes," an effect created by unstable flow. In this application, the challenge was complicated by the fact that the Daplen grade had to work in a mould originally designed for another material, so its shrinkage properties had to be identical.

"The IZB show is an important venue for us to meet with our downstream partners all along the automotive value chain," says Harald Hammer, Vice President for the business unit

Mobility at Borealis. “The examples we are showcasing show how our new organisation structure into specific automotive OEM teams translates in reality. The close cooperation with our customers leads to the most cost-effective solutions to their needs for increased manufacturing efficiency, vehicle performance and safety, and environmental responsibility.”

Borealis’ presence at IZB will also highlight the company’s ongoing investment in supply capabilities and partnerships to strengthen its on-the-ground support for the automotive market. A new 50,000 tonnes compounding plant was just recently inaugurated by Borealis’ joint venture Borouge and there are already plans to build a second compounding plant in China.

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## **Merquinsa Will Unveil a New “Wave of TPU Specialties” at K2010**

September 6, 2010 - Montmeló, Barcelona, Spain - Merquinsa, The TPU Specialty Company, today announced its participation at [K 2010](#) in Düsseldorf, Germany, from 27th Oct. to 3rd Nov. where it will be exhibiting for the first time in Hall 6, one of the main fair halls. For more information about the show, please visit the K 2010 website at [www.k-online.de](http://www.k-online.de).

Under the motto “Everything You Can Imagine“, in line with its [Thermoplastic Polyurethanes \(TPU\)](#) specialties and Sustainability focus, Merquinsa at this occasion will unveil a: New “Wave of TPU Specialties.”

[Pearlthane® SILK](#): New Silicone-based TPUs: New Pearlthane® SILK grades with FDA and EU compliance will be launched to address needs for more functionalities, such as low coefficient of friction and silk touch in a wide range of elastomer applications.

[Pearlthane® HFFR](#): New Halogen-Free Flame Retardant TPUs: Demand for halogen-free flame retardant elastomers keeps increasing in the automotive and electronics industry. New Pearlthane® HFFR grades offer innovative performance vs. incumbent market resins.

[Pearlthane® ECO](#): Renewable-sourced Bio TPUs: Recognized Global Brands now make Green Shoes, Green Cars and Green Electronics from Merquinsa’s Bio TPU polyester and polyether-based product ranges. Several New Commercial Renewable-sourced Bio TPU Applications will be exhibited at K2010.

[Pearlthane® 91](#): Aliphatic, Non Staining, Non Yellowing TPUs: Premium Aesthetics deserve Pearlthane® 91Txx series. New scratch resistant and low gloss TPU grades will be featured for premium aesthetics in Automotive Interiors & Electronics.

[Pearlbond®](#) & [Pearlcoat®](#): Low Melting Point TPUs: TPU chemistry goes beyond polymerizing isocyanates & polyols in a reactive extruder. With 46 years’ history, Merquinsa will introduce very special low melting point Pearlbond® and Pearlcoat® TPUs with fast crystallisation and tack properties for extrusion applications.

### **About Merquinsa**

Merquinsa is a leading thermoplastic polyurethane (TPU) specialty producer, providing innovative products for injection molding, extrusion, calendaring, melt coating, compounding and adhesive applications.

Merquinsa was granted the Frost & Sullivan 2008 Global Thermoplastic Urethane (TPU) Product Innovation Green Excellence of the Year Award. This award recognizes Merquinsa's innovation in biopolymers, with its groundbreaking Bio TPU made from renewable carbon resources and successfully marketed globally under Pearlthane® and Pearlbond®ECO brands. Merquinsa's headquarters are in Barcelona, Spain with regional centers in Asia and North America. For more information about Merquinsa, and PEARLTHANE®, PEARLCOAT®, PEARLBOND®, PEARLSTICK® and DISPERBOND® specialty TPU resins, please visit our Web site at [www.merquinsa.com](http://www.merquinsa.com) or call at + 34 93 572 11 00.

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## **DSM to Showcase Industry-Leading Portfolio of Green Thermoplastic Technologies at K 2010**

Autust 9, 2010 - DSM Engineering Plastics, one of the world's leading suppliers of engineering thermoplastics, will showcase its Eco solutions at [K 2010](#) in Düsseldorf, Germany, held from 27 October until 3 November 2010. The company will be exhibiting in Hall 6, stand number B11.

A key focus will be DSM Engineering Plastics' complete portfolio of Halogen Free engineering plastics, developed for a wide range of high-performance applications. Following the introduction of Stanyl® CR, this growing product family now includes [Stanyl®](#), [Stanyl® ForTii™](#); [Akulon®](#); [Arnitel®](#) XG; and [Arnite®](#) XG.

### **Complete Halogen Free portfolio in High Performance Polyamide**

A market leader in high performance polyamides, DSM offers particular expertise in anticipating and proactively addressing market demand. Based on this, and the company's widely used, high performance polyamide, Stanyl, DSM has developed several Halogen Free materials. All of these will be prominently featured at K 2010. They include: Stanyl ForTii, a completely new high performance polyamide that extends the application range of current Stanyl products. Besides Stanyl ForTii the Stanyl portfolio offers 2 different high-flow capable grades: Stanyl CR and Stanyl Highflow. Both grades are Halogen Free to meet the industry standard J-STD- 079. Each has been designed by DSM to meet specific customer needs.

**Stanyl® ForTii™** is an entirely new high temperature polyamide with Halogen Free, Flame Retardant grades. Due to its low moisture absorption combined with an extremely high stiffness it classifies for the second best moisture level according IPC/JDEC J-STD 020D. Stanyl Fortii extends the application range of current Stanyl products to an even higher temperature range supporting lead-free reflow soldering in most demanding surface mount and pin-in-paste soldering assembly processes. Customers will achieve higher performance in their applications versus previously available materials such as LCP.

**Stanyl® CR** is a new generation, Halogen Free, Flame Retardant Stanyl grade offering excellent flow, with a UL94-V0 flammability rating for the electronics industry. It is currently in use by leading global connector manufacturers.

“The industry is rapidly moving towards the use of Halogen Free products. With Stanyl CR, customers now have the opportunity to replace previously halogenated Stanyl grades while they can continue to rely on the well-known strength of Stanyl. DSM continues to support

halogenated grades in parallel to meeting customer requirements and different transition schedules” said Jason Lee, Global Segment Manager. DSM Engineering Plastics.

The **Stanyl® Highflow UL94 HB rated portfolio** is meeting market demand for Halogen Free, miniaturization, and cost reduction in the electronics industry. This UL94 HB rated portfolio is completely Halogen Free and has the best flow capability of all previously available materials, making extremely miniaturized designs possible. At the same time, it exhibits maximum productivity meeting demand for cost reductions.

**Arnitel® XG** is a high-end materials solution developed to replace PVC in wire insulations and cable jackets. Arnitel XG is a Halogen Free Flame Retardant co-polyester that does not contain brominated flame retardants, chlorine or plasticizers. The product has been successfully commercialized for PVC replacement, meeting the stringent safety, reliability and esthetic requirements for external wiring. It is also a more environmentally responsible material vs. PVC.

### **DSM Engineering Plastics**

DSM Engineering Plastics is one of the world's leading suppliers of quality engineering thermoplastics providing customer value through sustainable solutions that reflect the DSM People, Planet and Profit strategy. DSM Engineering Plastics delivers innovative opportunities for customers who design or produce electrical applications, electronic equipment, cars, barrier packaging films as well as many mechanical and extrusion applications. These markets are served with a broad portfolio of high performance materials including Akulon® and Novamid® 6 and 66 polyamides, Arnitel® TPC, Arnite® PBT and PET polyesters, Yparex® extrudable adhesive resins, and Stanyl® high heat 46 polyamides. Most recently, DSM Engineering Plastics has introduced the first new polymer of the 21st century: Stanyl® ForTii™ and has expanded her portfolio with two bio-based, high performance engineering plastics, EcoPaXX™ and Arnitel Eco. DSM Engineering Plastics had sales in 2009 of EUR 648 million and employs some 1600 people worldwide More on: [www.dsmep.com](http://www.dsmep.com).

### **DSM – the Life Sciences and Materials Sciences Company**

Royal DSM N.V. creates solutions that nourish, protect and improve performance. Its end markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electrical and electronics, life protection and housing. DSM manages its business with a focus on the triple bottom line of economic prosperity, environmental quality and social equity, which it pursues simultaneously and in parallel. DSM has annual net sales of about €8 billion and employs some 22,700 people worldwide. The company is headquartered in the Netherlands, with [locations](#) on five continents. DSM is listed on Euronext Amsterdam. More information: [www.dsm.com](http://www.dsm.com).

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### **[New Flame-Retardant Engineering Plastics](#)**

July 2, 2010 - BASF is introducing additional grades of flame retardant polyamides (PA) and polybutylene terephthalates (PBT), and launching the new [Ultramid® FRee](#) and [Ultradur® FRee](#) product lines. The FRee grades are formulated without halogen-containing flame retardants and, because of their light natural color, are ideally suited for manufacturing electrical components in all color tones – the suffix FRee thus stands for Flame Retardant and Electrical/Electronic (E/E), but also for design freedom and halogen-free. Ultramid FRee and Ultradur FRee employ innovative flame-retardant systems that are the result of years of

research and development. At the same time, with their mechanical property profile and economy, the products establish new standards.

At the [K show 2010](#), BASF will introduce the first four new grades: Ultramid FRee A3U40 G5, a PA66-based product that reliably satisfies the requirements of IEC 60335-1, the newest version of the safety standard for household appliances, and Ultramid FRee B3U31 G4, a PA 6 product with an optimized price/performance ratio that is tailored specifically to the requirement of circuit breakers. The PBT line from BASF is being expanded through addition of Ultradur FRee B4440 G5 and B4450 G5. Both products satisfy the requirements of UL94's flame retardant class V0, the former at low wall thicknesses in particular. Ultradur FRee B 4450 G5 is characterized by especially high tracking resistance.

### **Tighter flame retardance requirements**

To ensure greater safety for consumers during operation of electrical household appliances, the regulations promulgated by the International Electrotechnical Commission (IEC) tightened the requirements for the flame retardance of household appliances about five years ago. The relevant requirements are summarized in the IEC 60335 standards.

These so-called [glow wire tests](#) (acc. to IEC 60695-2-10ff) in particular are especially important in this regard. They determine whether a test specimen ignites upon contact with a glowing wire and how long it burns. This criterion has been made more stringent for certain critical cases involving electrical insulation.

According to the current standard, any flame that is ignited on a test specimen must die out within five seconds – while still in contact with a glowing wire at a temperature of 750 degrees Celsius. If this is the case, the material is given the rating GWIT 775. GWIT stands for „Glow Wire Ignition Temperature“; „GWIT: 775 / 1.0“ means that a glowing wire at 750 degrees Celsius was not able to ignite a one millimeter thick specimen of the material. Until a few years ago, the requirement called for the flame to die out within a minute after the plastic was ignited by a glowing wire at a temperature of 850 degrees Celsius. This result was documented in a so-called GWFI 850 rating.

A different but similar regulation applies specifically in the USA: There, products are subject to the standards issued by Underwriters Laboratories (UL): These require that the material pass a combination of flammability (acc. to UL94) and ignition tests.

### **The criteria: halogen-free, light colored, compatible, economical**

This alone is challenging. Aspects that are not of technical nature but, still, can be extremely important for customers, further add to the challenge. It has been possible for some time to comply with the more stringent requirements through use of halogen-containing flame retardants. However, a trend toward halogen-free flame retardant thermoplastics has taken hold in the market recently. One of the primary reasons for this is the European directive for disposal of electronic/electrical equipment waste, WEEE. It requires that components with halogen-containing flame retardants be sorted and disposed of separately.

It is not always possible, however, to find a substitute for halogen-containing flame retardants. Red phosphorus, for instance, is an outstanding halogen-free flame retardant – but has the drawback of a pronounced dark natural color that carries over into the flame retardant component. On the other hand, the E/E industry has an increasing preference for light-colored plastics. For instance, switches, connectors and circuit breakers in many household and

industrial applications are often kept light in color to satisfy special design requirements or prevent mixups during assembly. These colors can be achieved only through use of color-neutral flame retardants.

Effective flame retardants must satisfy a large number of other requirements as well. They must not only harmonize with the matrix material, but also exhibit the correct behavior in the extremely sensitive interplay with numerous other additives during compounding and subsequent processing. These include synergists and colorants as well as reinforcement components such as glass fibers.

They must also be priced competitively. Alternatives to red phosphorus in the form of organic nitrogen or phosphorus compounds, for instance, are quite expensive. The new members of the FRee family from BASF have succeeded in combining performance and economy.

### **Thin but safe**

The new members of the FRee product line not only satisfy the demanding requirements for absence of halogens, thus reducing the disposal costs associated with the WEEE directive. They can be used with a variety of colors, giving designers greater possibilities. The impact-resistant Ultramid FRee A3U40 G5, for instance, successfully passes the glow wire tests called for by the tighter regulations in IEC 60335-1 starting at a thickness of one millimeter – this corresponds to the rating GWIT: 775 / 1.0. This is noteworthy, since at identical heat input, the ignitability of a material increases with increasing surface/volume ratio: Generally, the thinner the part, the easier it is to ignite. As a result, the new FRee polyamide provides considerably greater freedom when designing switches and thin-walled housing with snap fits: Thinner walls also mean optimal use of the available space – which translates into lower material costs.

The new Ultramid FRee B3U31 G4 in particular satisfies the demanding circuit breaker requirements regarding flammability and ignitability starting at a wall thickness of one millimeter. Moreover, it is characterized by a very favorable price/performance ratio and incorporates a new type of thermal stabilization system that reduces yellowing significantly. This makes the material extremely color-stable, reflecting the current trend in the circuit breaker market – where ever-lighter colors, even approaching white, are desired.

Ultradur FRee B4440 G5, the first new PBT, even achieves the highest V0 rating according to UL 94 at a wall thickness of 0.4 millimeters. PBT materials that offer this rating for very thin walls without the use of halogen-containing flame retardants while additionally giving customers the benefit of a light natural color have appeared on the market only recently – the technical hurdles were long considered too difficult. The material is very well-suited for applications that call for outstanding dimensional stability, e.g. lamp sockets, connectors and sensors, for instance, but also control unit housings such as those for electronic control units (ECUs) in automobiles.

In Ultradur Free B4450 G5, the focus is on exceptional tracking resistance, measured as the so-called Comparative Tracking Index (CTI). This property is important when it comes to insulating very high voltages. The extremely high CTI of 600 for Ultradur FRee B4450 G5 makes it possible for component designers to reduce the spacing between contacts and thus shrink the housing and save material.

All members of the FRee and Ultradur FRee lines have very good processability in common. They exhibit good flow characteristics, rapid cooling and solidification rates and minimal plate-out in the mold. The well-established flame-retardant BASF plastics in the Ultramid and Ultradur product lines such as Ultramid A3X2 G5 (which contains red phosphorus) are not affected by the introduction of these new grades and remain available.

### **Designed for a growing market**

The new FRee plastics are expected to have considerable opportunities for growth. In 2009, about 280,000 tons of flame-retardant polyamides and polybutylene terephthalates were sold. The fraction of halogen-free materials, however, differs greatly between these two resins: while almost half of the flame-retardant polyamides fall into this category, less than five percent of PBTs do. At an estimated six to ten percent per year, the growth rates of halogen-free flame-retardant engineering plastics is considerably higher than that of flame-retardant plastics overall. PBT is probably at the upper end of this range, since the demand for halogen-free products is especially high here.

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### **[Merquinsa to Showcase Its Green TPUs at CHINAPLAS 2010](#)**

April 16, 2010 - Shanghai, China - Merquinsa today announced its participation at CHINAPLAS 2010 in Pudong, Shanghai from April 19-22, where it will collaborate with its recognized Chinese distributors Ngai Hing Engineering Plastic (Hong Kong) Ltd. and Paceco Industrial Supplies Pte Ltd.

Merquinsa will present on this occasion its new Bio polyester and polyether based TPU ([thermoplastic polyurethanes](#)) [PEARLTHANE® ECO resins](#) along with its TPU specialties [PEARLCOAT®](#), & [PEARLTHANE®](#) portfolio, including special extrusion polyether TPU grades & non-yellowing aliphatic TPU resins.



Merquinsa's Green TPU with a bio content from ca. 20 to 90%, according to ASTM D-6866, offers outstanding performance and sustainability benefits vs. standard petroleum-based TPUs for a wide range of sport & leisure, consumer electronics and automotive applications.

“We are pleased to contribute to the promotion of Merquinsa's unique range of Bio TPUs for the Chinese Market and support Chinese customers to turn to Green Plastics & Green TPUs, said Jackson Ng Sales Director of Paceco.

“Merquinsa has built its name for a premium supplier of High Quality TPUs. Ngai Hing specializes in supporting application development with unique aliphatic TPUs for the Chinese automotive, electronics and sport industries“, said Ben Ng President and Co-Founder of Ngai Hing Engineering Plastic (Hong Kong) Ltd.

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