

PolymerPlace Notes

A plastics technology newsletter

By Margaret Baumann, G.H. Associates

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800.207.7659

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- GE Plastics and GLS Corp will jointly develop complimentary grades of engineering thermoplastics and elastomers
- [Nova Chemicals' focus on high-margin products to drive growth in styrenics](#) has yielded new patents for its new VOC-free technology and capacity expansions for its expandable foam and styrene maleic anhydride (SMA) resins.

- Solvay Advanced Polymers has announced plans to expand the capacity of its polyamide-imide (PAI) plant in Greenville, SC, by 30%.

PROCESS DEVELOPMENTS

- Japanese firms now lead the world in environmental investments, according to a new report published last week by Raymond Communications, Inc.
- Valeo recently became the first European Trexel Licensee to have a MuCell part approved for commercial production.

What's new at Polymerplace?

We are combining the July and August issues of the newsletter into one because, well, it's summer! We at Polymerplace hope you are having a good one...

Even though it is summer, market research and planning are critical functions to insure successful new business development for your company. Contact us at 908-832-2207 or info@polymerplace.com to discuss how we can help you with your business development needs.

FEATURED STORY

It seems lately there is more bad news than good. One of the last of the plastic market dot.coms has bitten the dust this month. [Conferos \(originally named BuyPlastics.com\) is closing its doors this month after a run of two years.](#)

Apparently they ran out of money. Conferos business model was a service provider model. They offered a secure workspace suite of services for design collaboration. Conferos had a great pedigree. They were powered by Parametrics Technology and IBM and counted among their customers Ticona and Honeywell. They reportedly also counted some members of the OEM community among their customers. The downturn in the economy and the disenchantment with internet based services is part of the explanation for their failure. Their burn rate exceeded their ability to attract enough customers to turn the enterprise into a profitable one.

But we think there is another reason for their failure. Polymerplace.com considered offering such a service but concluded it was too early in the learning curve of web-based services to ensure success.

Conferos, as in other failed dotcoms like PlasticsNet, neglected to educate the market to the benefits of the service they provided. There was too much of a "build it and they will come" attitude. Adoption of new technology in any form is a long road. It requires patience and recognition that people need to be comfortable enough to take the risk. It is important to establish credibility, educate the customer and in essence help him realize what he needs.

The principals of Polymerplace believe that there is a place for such a service and would like to help with such an effort in the future. Contact us if you agree! Info @polymerplace.com.



Meantime, [Verticalnet Inc.](#), a provider of supply chain software, has sold [PlasticsNet](#), its online marketplace for the plastics industry, to Corry Publishing Inc., Erie, PA, a publisher of magazines, newsletters, and web sites on data and supply chain management. Verticalnet recently sold all 59 of its web-based marketplaces to Corry .

Founded in 1995 by Chicago-based Commerx, PlasticsNet started out as an independent online exchange for plastics products and services. Facing stiff competition from industry consortia, the site was sold to Verticalnet in February 2001. And now it is being sold again. As currently designed, PlasticsNet offers visitors to the site the opportunity to buy and sell online, and to access a buyer's guide, job listings, and market research reports as well as a news headline service. Corry Publishing has not stated its plans yet for the PlasticsNet site but we will be following any developments.

POLYMER END USE MARKETS

Transportation

Johnson Controls Inc. enjoyed a strong performance from its global interiors business and went on to report record sales and earnings for its third quarter.

Sales by the company's Automotive Systems Group increased 13%. In North America, sales growth of interior systems and batteries was up 5% reflecting new interiors and battery business, an increase in domestic industry vehicle production, and stronger demand by existing battery customers.

Revenues from European interiors and battery operations were 33% higher than in the prior year. Most of the increase was due to the Revenues from their newly launched interiors systems business.

Automotive Interiors has become a very exciting part of the automotive business. Robert Eller Associates is currently compiling a new multi-client study on Automotive Interior Soft Trim. The Interior of the vehicle is where some very interesting developments in plastics technology are occurring. For more information and a prospectus on the study go to www.robertellerassoc.com.

Optical Media

Even though demand for pre-recorded CDs is said to be maturing new end-uses in CD-Rs and new formats such as digital video multiple recordable discs (DVD-RW) are emerging. Current R&D focuses on using blue lasers to maximize the amount of data that can be stored and recorded. For example, while a CD-RW (multiple recordable) disc can store 680 megabytes of information, a DVD-RW can contain 4.7 gigabytes of data. The use of blue lasers can further extend these capabilities.

According to Bryan Iams, director of corporate communications at Bayer Corp., Pittsburgh, 25 billion [optical discs](#) were produced worldwide last year, accounting for 430,000 metric tons of PC. The sector, he says, [will grow 15%/yr up to 2005, when consumption will approach 800,000 metric tons, one-third of the total estimated PC market](#) at that time. Bayer has announced that it plans to be the largest PC supplier worldwide in the next four years. They are investing in Thailand and Shanghai, China and expect global capacity to increase to more than 1.1 million metric tons by 2006.

Teijin is making a 50,000-metric-ton expansion in Singapore for its Panlite PC resin, bringing total capacity there to 300,000 metric tons. They claim to have the largest share of the current world market for recording media such as CDs and mini discs.

Dow can now manufacture its PC disc resin, Calibre 1080 DVD, at plants in Freeport, TX, and Stade, Germany, as well as at its Sumitomo Dow Ltd. facility in Niihama, Japan, and LG Dow Polycarbonate Ltd. site in Yosu, Korea. The company's total optical media grade PC capacity is about 60,000 metric tons.

Netstal, Naefels, Switzerland, a machinery manufacturer will introduce a new version of its Discjet injection molding system. The company, which claims to be the world leader in molding equipment for optical media, has refined the Discjet to have a smaller footprint and incorporated a "hybrid" injection drive.

Ovonic Media, a joint venture between Energy Conversion Devices, Troy, MI, and GE Plastics, Pittsfield, MA. offers a continuous roll-fed process for DVDs, now in the scale-up stage. It is expected to produce discs at up to 20 times faster rates than injection molding and at lower part cost. The Ovonic Media process uses a special grade of PC film developed by GE for the outside layers of the discs. The initial emphasis is on DVD-WR Technology.

Packaging

In early July, [New York City discontinued its curbside collection of plastic containers](#) for at least a year. This was a very unfortunate development. It will likely signal discontinuation of programs in many other communities and municipalities. This is quite a blow to consumer plastics recycling. Plastics recycling depends on collection and especially at a critical mass.

The estimated amount of plastic containers to be removed from the recycling feedstock stream by the New York decision is about 24 million lb, according to Robin Cotchan, director of the APR (Association of Plastics Recyclers). This represents approximately 1.6% of the 1.511 billion lb of plastic recycled in 2000 (2001 APR figures are currently being compiled). "The New York move could not have happened at a worse time for the recycling industry," says Cotchan, "which is facing tremendous undercapacity alongside growing demand from companies that want to include post-consumer recycled plastics in their packaging and products." In PET, she says, the major soft drink producers will continue to capture a great deal of the remaining recycled material because of deposit laws.

Plastic lumber suppliers will be less affected because they derive a large amount of their feedstocks from recycled polyethylene bags.

Dennis Sabourin is investor relations officer for Wellman, Johnsonville, SC, the largest North American PET recycler (the company also operates three plants in Europe). He points out that this development sends the wrong message to consumers about the importance of managing solid waste, unlike more environmentally conscious countries in Europe, for example.

Hopefully APC (who now has joined efforts with the Chemical Manufacturers Association) can work their PR magic and reverse this trend. And hopefully we as consumers will continue to recycle even if it means driving our recycled plastic containers to a collection depot.

Construction

Polywood is a producer of railroad ties and other products based on unreinforced recycled high-density polyethylene and polystyrene. They have recently been awarded a contract by the New Jersey Department of Environmental Protection to manufacture the components of a 40-ft bridge over the Mullica River in Wharton State Park. The one-lane fire equipment access bridge according to Polywood is the first all-plastic bridge to incorporate unreinforced I-beams, eliminating the need for a steel substructure.

Polywood is the exclusive licensee of a process to produce "co-continuous" immiscible post-consumer HDPE and PS scrap, initially developed at Rutgers University, which negates the need for glass reinforcement in high load-bearing applications.

The bridge is to be constructed using a substructure consisting of 14- and 18-in-deep interlocking plastic I-beams, each with a 2.5-in wall thicknesses. The larger beams are 12 in high; the smaller versions are 8 to 10 in high. Polywood has developed a process for continuous extrusion of railroad ties but is using a casting process to produce the 15-ft-long I-beams because of their large size. The I-beams will be bolted together to form the bridge substructure, which will rest on wood pilings from the previous bridge at the site that was destroyed during a fire. The president of Polywood, Paul Kerstein, says that the 3- in by 10- in, 15 to 16-in long plastic planks that will form the bridge roadway have passed all flame retardant testing requirements.



Textiles

[Matrex, a division of Leggett & Platt Company, Greensboro, NC, uses Elas-Ter® monofilament from Teijin Monofilament U.S., Inc. as the basis for its Sytex® seating support textiles](#), so that furniture makers can provide seating options from soft and plush to extremely firm. The monofilament's uniquely broad range of hardness and stretchability derives from Riteflex® thermoplastic copolyester also from Ticona. Manufacturers of household, office and contract furniture often use Sytex textiles in place of metal springs and natural rubber. The fabric, which is placed between the upholstery and the foam, is quicker and easier to install

than springs and reduces frame stress to allow for less expensive frames. The knitted fabric that ranges in width from one to 30 inches has a patented construction that ensures the monofilament is not cut during stapling. Compared with springs, the elastomeric fabric has better fatigue resistance and memory and creates almost no noise. It stands up well over time, losing just 4 percent of its load-bearing capacity after hundreds of thousands of cycles. It also has a longer life than rubber webbing and resists fungus, urine, mildew and household cleaners.

“Our Sytex ® fabrics make furniture lighter, less expensive and easier to produce.” says Matrex president Roger Tornero. “These fabrics can reduce a seat’s profile and make it more comfortable. They also allow less foam to be used and lengthen foam life because the webbing deflects with the foam, so the foam never fully compresses. They are so stable and long-lasting that we guarantee them for the life of the chair or sofa.”

The Elast-Ter ® monofilaments used in the fabric have a low initial modulus, high elongation at break, and true elastic recovery over the first 10 percent of their elongation. They lose no strength in knotting, have excellent abrasion resistance and are fully recyclable. They also take up dye at a high rate, absorb little moisture (typically less than 0.3 percent in 24 hours) and are stable in high-temperature water and steam that occurs during dyeing.

“Our Elas-Ter monofilaments have durometer values of 40, 55 and 72, so fabric makers can provide many strength and stiffness options,” says Bruce Stroupe, Marketing Manager at Teijin. “Other producers typically offer only 55-durometer products. Our range of monofilament durometers and properties are based on the hardness, stretch, recovery and other capabilities inherent in Riteflex ® copolyester.” Teijin’s monofilaments have deniers from 152 to 5850 and diameters from 0.20 to 0.80 mm. Matrex uses 0.40 and 0.50 mm monofilament grades in their Sytex ® fabrics. Elas-Ter ® products have tenacities from 1.95 to 3.82 g/d, elongations between 85 to 161 percent, and hot-air shrinkages from 10.7 to 30.2 percent.

For information on Riteflex ® thermoplastic copolyester, contact: Ticona, Tel: 1-800-833-4882. Or visit: <http://www.ticona.com>.

For information on Elas-Ter ® monofilament, contact: Bruce Stroupe, Teijin Monofilament U.S.-Phone: 1-864-529-9204 or E-mail: stroupeb@us.teijinmonofil.com.

For information on Sytex ® seating support systems, contact: Matrex, Phone: 1-336-379-7777. E-mail: info@matrex.net.



POLYMER DEVELOPMENTS

In recent newsletters we have reported on technology developed by Cyclics Corp for composites including an alliance with Dow Automotive to develop resins suitable for automotive structural composites.

Recently, [Alcan Composites, a unit of Alcan Inc., and Cyclics Corp. announced that they are working together to develop Cyclics' polybutylene terephthalate \(PBT\) resins, trade-named CBT, for structural composite materials for construction, infrastructure, and other industries.](#) Cyclics offers a line of resins that process like thermosets but have the properties of thermoplastics.

The chemical precursors of the CBT resins are initially solids, but when heated in processing equipment they melt to a low-viscosity liquid that allows high loadings (up to 70%) of reinforcements such as glass and carbon fiber. Under the action of a catalyst, which can be included in the formulation or added downstream, the hot liquid polymerizes to PBT. Aside from its low viscosity, the CBT product possesses other advantages- no volatile emissions, no exotherm during reaction, and no need to cool parts before de-molding

Alcan Composites which has operations in Europe, North and South America and China has extensive experience in products ranging from lightweight foam sheet, rigid plastic foam sheets, to aluminum composite panels, sandwich core material, structural components and prefabricated modules for the transportation industry.



[Ticona, the technical polymers business of Celanese has introduced Celcon® acetal copolymer, grade FG40U01 –the first acetal developed specifically for commercial meltblown nonwoven fabrics.](#) The new grade goes beyond conventional acetals to provide greater stability in extrusion on both older and state-of-the art equipment, especially those that process polypropylene (PP).

Celcon® FG40U01 acetal produces coarse-denier meltblown fibers and can be used in fabric with a variety of thicknesses and having textures ranging from soft to stiff. It processes at lower melt temperatures than PP, i.e., 190° to 225°C versus polypropylene's 200° to 300°C, and has been proven for die-to-conveyor distances of 4 to 20 inches.

“The new grade offers significant advantages over other polymers, especially in fuel and oil filter applications,” says Ramesh Srinivasan, nonwovens process specialist. “For instance, it is easier to process than nylon 6 and 6/6, and has better performance than PP and polyester when exposed to fuel for an extended time.”

“Celcon® FG40U01 acetal copolymer is the first of a new line of nonwoven-grade acetals. In the near future, we expect to add Celcon® grades for fine-fiber meltblown, spunbond and staple fiber processes. These grades will join our existing acetal grades for netting and monofilament.” Celcon® acetal copolymers are crystalline engineering thermoplastics with excellent resistance to hot water and many chemicals. They have exceptional strength, resilience and mechanical and thermal stability.

For information on the new Celcon® FG40U01 acetal copolymer for meltblown processing and other Celcon® grades, contact: Hedden Miller, Ticona, 90 Morris

Avenue, Summit, NJ, 07901, USA. Phone: 1-908-598-4199.
email: Hedden.Miller@ticona.com.



[GE Plastics, Pittsfield, MA, and GLS Corp., headquartered in McHenry, IL, will jointly develop complimentary grades of engineering thermoplastics and elastomers](#) to meet new customer uses in a range of markets. As part of the agreement, GE Plastics' commercial organization, GE Polymerland, will be the exclusive distributor of the products developed by the two companies. Ultimately, the new products will be available on gepolymerland.com.

The effort will focus on developing combinations of GLS specialty elastomers molded over GE resin substrates to provide value-added materials. These products, which will be sold under the Softfx® brand name, will provide a soft, tactile feel on areas where consumers desire a good grip on the product, the companies said. The joint development effort will potentially decrease customer product development time according to Walt Ripple, director of marketing for GLS. Softfx products will include an engineering thermoplastic substrate such as polycarbonate, PC/ABS, or ABS to provide a "hard-soft" system that provides lightweight, durable, and visually appealing characteristics in industries such as power tools, appliances, medical equipment, personal care, sporting goods, automotive, telecommunications, and other portable electronics where 'gripability' is important.

The potential for TPEs in soft-touch grips and other tactile components is exploding, according to industry observers. GLS is a custom TPE compounder that supplies few off-the-shelf products and concentrates on specialized formulations, primarily for consumer products. GLS develops TPEs and alloys based on styrene block copolymers and other elastomeric feedstocks with hardnesses ranging between 30 and 70 Shore A.



[Nova Chemicals' focus on high-margin products to drive growth in styrenics](#) has yielded new patents for its new VOC-free technology and capacity expansions for its expandable foam and styrene maleic anhydride (SMA) resins.

The styrenics maker said it has received three patents and three patents are pending on VOC-free EPS technology. The technology, which requires special equipment, uses water as a blowing agent in a two-step expansion process. The company has already developed Ultra Low pentane EPS with 50% less pentane than standard grades and 25% less than other low-pentane EPS grades. Nova's goal is to reduce pentane use from 6% to 3% at first and gradually eliminate pentane use.

According to Nova Chemicals, about 50% of the U.S. market will require low-pentane (3%) EPS resins due to a continued tightening of EPA standards for VOC emissions. VOC-free EPS resins are still 2 to four years away from commercialization.

In addition, the company will double capacity for Arcel® PS/PE interpolymer at Beaver Valley, PA. The expandable foam resin is 10 times stronger than standard EPS and offers multiple-drop capability for packaging. Arcel's ability to absorb impact makes it suitable for packaging for personal computers, televisions, and other electronics products, say Nova Chemicals. In addition, the company sees strong growth fueled by increases in shipping requirements due to e-commerce. Nova estimates 100 million lb of global potential.



[Solvay Advanced Polymers has announced plans to expand the capacity of its polyamide-imide \(PAI\) plant](#) in Greenville, SC, by 30%. The project is scheduled to be completed by the end of the first quarter of 2003, according to Daryl Brace, Solvay's global business manager for the Torlon resin and fabricated parts business. The Torlon business was part of the acquisition that Solvay made from BP Amoco last year.

Torlon PAI is a high-performance thermoplastic that offers the advantages of a thermoset, in that once cured, it provides strong performance in severe service environments. However, like a thermoplastic, it can be processed by standard methods such as injection molding, extrusion, and compression molding.

PAI is used in demanding applications requiring high strength at continuous use temperatures up to 260 deg C (500 deg F), exceptional friction and wear performance, and excellent resistance to creep and chemicals including organic solvents. Typical applications include thrust washers, seal rings and ball bearings for automotive and off-highway vehicles, jet engine components, high-temperature coatings and adhesives, as well as semiconductor testing and fabrication equipment.

The Greenville plant produces both resin and compounded products. The company also operates a Torlon fabricated parts facility in Atlanta, GA.

PROCESS DEVELOPMENTS

While American electronics firms have been working on recycling and environmental improvements longer, [Japanese firms now lead the world in environmental investments](#), according to a new report published last week by Raymond Communications, Inc.

According to "Electronics Recycling: What to Expect from Global Mandates," the giant Matsushita Electric invested \$497 million on environmental compliance, recycling, "zero waste," and eco-design projects in 2000. Sony Corp. spent about \$154 million, but does not include eco-design in the figures. In Comparison, IBM Corp. spent \$109 million on compliance only. (No other American firm disclosed its investments.)

The report summarizes environmental reports of 28 major electronics firms. It finds that Japanese companies jumped on the environmental bandwagon around 1997, much later than U.S. companies. However, they made major investments in all areas, including getting their plant wastes to nearly zero, setting up

recycling plants in Japan, green procurement, training, and product re-designs. While it appears American companies are making progress in all areas, the report finds that U.S. environmental managers can be hampered by budget fluctuations.

The new 197-page report covers U.S. state and federal legislation, as well as detailed coverage of 16 countries, including Canada, Europe, Asia and Latin America.

U.S. government and industry representatives are currently trying to work out a national “voluntary” stewardship plan for TVs, computers and peripherals – which will eventually entail national legislation.

The report estimates that a U.S. system will cost several billion dollars per year to run. On a state level, there are now 28 electronics recycling bills in 10 states – with bills moving in California, New York and Massachusetts.

Meanwhile, the European Union is poised to enact two new waste electronics directives that could cost industry about \$10 billion per year, according to industry estimates. The directives will require industry-financed collection systems for any product with a cord or battery.

In addition, a second directive will restrict heavy metals such as mercury, lead, cadmium and chromium in electronics, with some exemptions. While CRTs will be exempt, industry will be forced to phase out lead solder, now used in making circuit boards.

While eleven countries already have electronics “takeback” laws on the books, the Raymond report predicts that within five years, 28 countries will have such laws.

For information call 301-345-4237 or check <http://www.raymond.com>



Valeo recently became the first European Trexel Licensee to have a MuCell part approved for commercial production. The part is an in-mold labeled fascia for a climate control unit. Originally in production as a solid, it is being changed over to like lower cavity pressures, molded-in stress and clamp tonnage, reduced part weight, and better dimensional stability. Additional advantages were realized by optimizing runner design, venting and cooling.

"The MuCell process provides us with a variety of benefits depending on the application," explains Stefan Koller, who heads up Valeo Climate Control's MuCell program. "Further investments in MuCell hardware are planned to continue the process of evaluating other applications."

Plastics Technology Magazine prominently featured MuCell in its May issue in an article entitled *Automotive Insert Molders Try Microcellular Route to Precision Parts*. The article states that in insert molding, the key advantage of microcellular foaming is turning out to be improved precision and dimensional stability in intricate like sensors and meters. The article highlights a Delphi part molded by Pixley Richards and a Tricon MuCell-molded Chrysler application.

The complete article can be accessed at www.trexel.com.



References: The stories in *PolymerPlace Notes* come from a variety of sources including Company Press Releases, daily newswires, Interviews, and trade publications, e.g. *Plastics News*.

www.Polymerplace.com

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