

## PolymerPlace Notes

*A plastics technology newsletter*

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Volume 5

April/May 2004

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### HIGHLIGHTS THIS MONTH

- Review of Trade Shows and Conferences attended
- Preview of May ANTEC- Marketing and Management Division

### POLYMER MARKETS

- **Medical/Instrumentation:** Microfluidic components are critical elements in the development of a wide variety of modern systems and device solutions.
- **Housewares:** Design dominate issue at housewares show

### MATERIAL DEVELOPMENTS

- Specialty compounder **RTP Company** has introduced the first in a new series of functional thermoplastic elastomer compounds that are formulated for specific properties and optimized performance
- **GLS** is announcing two new grades in their first of a kind Versollan RU (*"Rubberized Urethane"*) line of TPU alloys.
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### PROCESS DEVELOPMENTS

- Advanced Blending Technologies Inc. of Perrysburg Ohio helps processors use commodity and recycled plastics in place of specialty grades and recently, has expanded its services to include rotational molders.

This month's newsletter will review shows/conferences we attended in the last month. The CDMA meeting was held March 15-17 in Philadelphia and the JEC Composites Show in Paris, France March 30-April 1.

We will be attending two more industry events in the next month. The Industrial Biotechnology Conference co-sponsored by the ACS and the annual technical meeting of the SPE (Society of Plastics Engineers) May 16-20 in Chicago, Illinois. We have included the schedule of the upcoming SPE marketing and management sessions scheduled at ANTEC in this issue.

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### **Review of the CDMA (Commercial Development and Marketing Association) Spring Meeting- 2004 by Maggie Baumann**

The CDMA Spring Meeting was held in Philadelphia March 15-17, 2004 at the Union League. The new format, which provided an excellent information exchange as well as networking event, was more stream-lined than previous meetings.

The Theme of the meeting was "How to manage Growth and Profitability ". The conference opened with a workshop on corporate venturing.. The workshop provided an introduction to

corporate venturing, a hands-on breakout session to apply the tools presented, and a wrap-up to compare valuation results.

The presenters were Todd C. Peterson, Co-founder and Principal and Keith Peltzman, Associate, Foster Chamberlain.

The workshop was followed with the keynote presentation by James Mack, the president of Cambrex. Cambrex touted as a "star in Specialty Chemicals" in the 90s is in the process of completing a transformation from a specialty chemical company to a life sciences company. Mr. Mack was very open about where Cambrex had made missteps in the recent past and gave the attendees a very good insight into Cambrex's strategic thinking and initiatives. As Mr. Mack puts it, "strategic plans are roadmaps to the future. These plans need to be flexible, allow for options and contingencies and permit periodic mid-course correction when the situation or environment changes".

The Tuesday AM session was entitled: The Economy, Equity forecasts and Financing Future Growth. The session opened with an economic outlook for 2004 presented by the chief economist of Air Products, Duncan Meldrum. He forecast that 2004 will see strong GNP growth and the recovery will reach peak growth. He felt that 2004 will be strong globally with interest rates and tax rebates assisting with the growth. The only uncertainty is will the recovery generate enough employment to fulfill the prediction.

Joseph Chang, the financial executive editor of the Chemical Market Reporter publication observed that M&A activity today is largely in financial buyers, e.g. Blackstone/Celanese. He also observed that M&A valuations have decreased from 13.9 EBITDA in 1999 to 6-8 EBITDA in 2003.

Sergei Vasnetov of Lehman Brothers, another panel participant, expects improvement for commodity chemicals in 2004 but with the continued high energy costs, overcapacity and the shift of manufacturing to Asia, prices will remain flat.

Jeff Zekauskas, JP Morgan's VP and head of Global Chemicals Research commented on the Specialty Chemicals segment. He concluded that the companies that outperformed the market are pseudo global companies. In other words they typically produce products that have short shipping distances. Paint and Industrial gases are typically shipped short distances. This makes them more immune to import competition.

Later in the day on Tuesday, the CDMA scheduled another timely topic for the executive roundtable discussion "Managing Today's Requirements vs. Tomorrow's Needs." The panelists included: Antonio Torres, Global Director of New Business for Dow Chemical, Paul J. Norris, Chairman and CEO, W.R. Grace & Co., Robert E. Gadowski, Exec. VP, retired, Gases and Equipment, Air Products and Chemicals and Tony Gaskell, CEO, Infineum International Ltd. and Peter Francis, Chairman, CEO and President, J.M. Huber.

Some of the highlights of their comments and discussion include the ever increasing importance of Human Capital in the business. They also emphasized the importance of setting realistic goals and meeting plans. New Business requires persistence and patience; often the key is to challenge the existing business model. "In mature businesses we can know the future; the opportunity is in how we respond", says Tony Gaskell.

Mr. Francis shared with us the main difference between a privately held company and public companies. He emphasized that the lack of quarter to quarter focus enables them to be more creative in their longer term planning. J.M. Huber is a family owned 120 year old business that is involved in engineered materials, natural resources and technology based services.

On Wednesday, attendees were given an eye-opening presentation regarding the NREL (National Renewable Energy Labs) in Golden Colorado. The NREL is involved in many of the leading technology areas of the future: bioenergy, advances in solar energy and other energy

sources like wind, geothermal and biomass, hydrogen fuel cells and infrastructure and advances in transportation (Hybrids, fuel cell vehicles).

Later in the morning attendees participated in an interactive session on "Coaching Startups for Corporate Interest" Ada Nielsen of BP Corporation organized the panel of CDMA members to role play with two start-up companies. The goal is to help start-ups present compelling value propositions in order to secure corporate partnerships, investments or alliances. Two start-up companies presented their cases to the panel.

Both companies presented their story and accepted questions from the panel. Those in attendance were able to watch the process in action. CDMA will look for opportunities to offer this "Commercial development workshop" in future meetings.

The fall meeting will be held in Chicago September 29-October 1, 2004 at the Union League. For more information go to <http://www.cdmaonline.org>.

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We visited the **JEC Composites Show (and Conference) in Paris, France, March 30-April 1**. SAMPE International is one of the show's sponsors, so we expected heavy emphasis on thermosets, aerospace, etc. We were pleasantly surprised to see something much more diversified. While the conference agenda was divided into presentation on aerospace, boats, and automotive, it would not be unreasonable to estimate that half of the composites exhibited and discussed were based on thermoplastics. Long glass composites, made by extrusion, injection molding, and compression molding processes were shown. The primary thermoplastic polymers included polypropylene, nylon and, PPS. Polyurethane RRIM composites were present, as were the more traditional SMC, BMC, and epoxy composites.

The show sponsors reported nearly 21,000 visitors attended; there were 880 exhibitors.

While the well-known global glass fiber suppliers, such as Owens Corning, Vetrotex, Johns Manville, and PPG were exhibiting; others were as well. Japan's Into and three relatively unknown Chinese glass fiber manufacturers were there. All of these latter firms were clearly very interested to establish a vigorous export business. Carbon fiber producer Toray showed its offerings, noting that it expects to complete construction of a plant in the US by the end of this year. Among polymer producers, Ticona showed its Celstran long fiber polypropylene compounds in large injection molded cargo racks for an ATV. Dow Chemical announced the divestiture of its FULCRUM™ TPU pultruded composites to a private venture capital group and FULCRIM management.

JEC Composites presented awards to a broad spectrum of composite applications. Full details can be seen at <http://www.jecshow.com>

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**The Marketing & Management Division of the SPE (Society of Plastics Engineers) will have two sessions at ANTEC 2004**, on Tuesday, May 18, 2004, with a total of twelve papers. ANTEC will be held at Navy Pier in Chicago May 16-20<sup>th</sup>. At 8 to 9:30 AM on Tuesday morning, M&M will have its first poster session ever, featuring papers on econometrics, the role of trademarks in marketing, and business opportunities abroad. Poster sessions allow a close interaction between speakers and audience members throughout the presentation, unlike podium sessions that hold questions until after the presentation is completed.

The afternoon session will begin at 1:30 PM with our keynote theme, "Managing Globalization." Speakers on this topic include Jeff Sloan (Injection Molding Magazine), Lori Anderson (SPI), Steve DeHoff (SES), Jack Avery (GE), and Roger Jones (Franklin International); each will address current issues concerning manufacturing and China, and then engage in an extended question-and-answer session with the audience. A similar program drew over 300 people at NPE

last year; this will be an opportunity to learn what has been happening since then, as well as how to adapt to survive and thrive in today's hyper-competitive business climate.

Other papers will commence at 3:30 PM and will cover project management, emerging technologies, a materials forecast for 2020, and a novel set of financial measuring tools. At 6:00 PM, the Division will hold its annual business meeting, followed by a board meeting – both are open to all.

These sessions will be a “must” for managers and engineers, to learn and to network with others facing the same problems and opportunities.

For more information please visit <http://www.4spe.org>.

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To reinforce the timeliness of the Marketing and Management session on “managing globalization”, at a recent open house for the Husky Injection Molding Tech Center in Wexford Massachusetts, Brian Jones, the president of Nypro Inc. commented that the basis of competition has shifted. “It’s now about speed and flexibility combined with the consolidation of customers, suppliers and competitors in every marketplace”.

The concept of shoot and ship molding is dead. Jones said that molders are bombarded with change: molder consolidation, global competition, superquick product lifecycles and large customers outsourcing their manufacturing to third parties. He recommended that you need a strategy to deal with all of these forces. He believes that all the troubles in the plastics industry are largely due to this multi-factor situation.

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**Finally someone is “getting it”-** A report by the President’s Council of Advisors on Science and Technology (PCAST) warns that the United States risks losing its high technology advantage if too much manufacturing capacity leaves for overseas. The report, "Sustaining the Nation's Innovation Ecosystems, Information Technology Manufacturing and Competitiveness," says U.S. policymakers must take a more proactive approach in responding to the negative trends impacting the U.S. high-tech manufacturing sector. According to PCAST, as manufacturing moves overseas, America's traditional strengths in research and development, innovation and design could follow. "The continuing shift of manufacturing to lower-cost regions and especially to China is beginning to pull high-end design and R&D capabilities out of the United States," reports PCAST. The group also recommends that the Federal government consider creating an organization designed specifically to pursue industrial research and development and to quickly transfer technology and people into a corporate type of environment. Other suggestions include increasing funding at universities for basic research in math, science and engineering; improving research and development coordination between the federal government and states; improving workforce education programs, and appointing a task force to assess how foreign countries are using tax incentives to lure industry. To read the full text of the report, link to <http://www.ostp.gov/pcast/FINALPCASTITManuf%20ReportPackage.pdf>

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## **POLYMER MARKETS**

### **Medical/Instrumentation**

Microfluidic components are critical elements in the development of a wide variety of modern systems and device solutions. Sectors in which they are most widely used include drug discovery, diagnostics, analytics, biosensors, and environmental monitoring. Individual applications may range from laboratory analyses on the surface of a slide to the construction of micro pumps required for the transportation of minute quantities of liquids. Common to all applications is the need for a material with optimal properties, while also being cost-efficient to manufacture. Topas® cyclic olefin copolymer (COC), a versatile high-performance thermoplastic from Ticona, scores well on both counts, making it the material of choice for thinXXS GmbH (Zweibrücken and

Mainz, Germany), a supplier of micro-structured components and systems specializing in the production of microfluidic applications.

The most recent example of an innovative thinXXS product development is a microfluidics "construction-kit" containing several micro-structured components with channels, mixers, reaction chambers, and rectification columns. Flexible design facilitates seamless combination of individual components and, thanks to defined interfaces, the assembly of application-specific systems for use in biotechnology or medicine.

The aim of the module is to minimize the financial and technological risk involved in the development of a so-called "lab-on-a-chip." Once the desired functional principle has been confirmed, the module can be integrated onto a plastic chip. For the engineers and technicians at thinXXS, manufacturing the components using Ticona's Topas® COC proved to be the ultimate win-win option.

ThinXXS GmbH (Germany) produces and develops microfluidic and microoptic components and systems manufactured from plastic materials. The markets benefiting from these hi-tech solutions include life sciences, medical technology, and automation. Further information is available at <http://www.thinxxs.com> .

For further information about Ticona and Celanese, please visit our websites: <http://www.ticona.com> and <http://www.celanese.com> .

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**Design dominant issue at housewares show** Mat Meinzinger, president of Creative Bath Products Inc., based in Central Islip, N.Y. observed recently that in the last three to four years the Housewares market has become more creative, more design-oriented. Design appeared to be a dominant issue at the Housewares show which was held in Chicago in March.

Creative Bath has launched a new company called Creative Ware which develops houseware products. CreativeWare's products include the Smart Can, a waste bin molded from polypropylene that hides the liner, and various food-storage products and flatware. Notably, the firm will shift certain products made of polystyrene to polycarbonate and melamine.

The show, hosted by the International Housewares Association, placed a spotlight on design this year, with stepped-up involvement from industrial designers and some manufacturers that are hiring outside design firms rather than relying on internal staffs.

Thermoplastic elastomer supplier GLS Corp. had a booth at the show to teach designers about TPEs and their uses, such as in soft-touch grips on cups for toddlers and scent in plastics. The firm introduced interactive software as a way to educate designers.

Laurence Wettern, owner and manager of Bridgport, England-based AAV Plastics Ltd., which focused on its new polypropylene wine decanter for the show commented "You've got to do more than just molding and toolmaking." Today, you need to have the right product. You cannot do secondary designs anymore".

For other companies, new product innovation is key and may trump the need to be a molder at all.

Zyliss USA Corp. of Foothill Ranch, California is outsourcing more and more of their manufacturing. Zyliss depends on molders in other countries, such as Italy.

Zyliss introduced its Easy Spin salad spinner, which has a pull cord to activate the spinning motion. The parts are molded from various plastics, including ABS and polypropylene.

Design is the differentiating factor in products, said Vicki Matranga, design programs coordinator for the International Housewares Association.

"We're trying to emphasize that design is increasingly important across markets and categories in our industry," Matranga said.

Plastics materials and processes have really enabled this explosion in design.

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## **POLYMER DEVELOPMENTS**

**Specialty compounder RTP Company has introduced** the first in a new series of functional thermoplastic elastomer compounds that are formulated for specific properties and optimized performance. The first commercial grades to be released (designated RTP 6002 and RTP 6003) have been specifically developed for improved bonding in two-shot or insert over-molded applications. Each of these new products is available in hardnesses of 45, 55, and 75 shore A.

Over-molding with elastomers is a way to add value and functionality to an application," explained Paul Killian, product manager for elastomers at RTP Company. "The addition of an elastomer can provide better grip performance, improve aesthetics, or provide sound/vibration dampening, as well as offer protection from impact and/or drop forces to an application. In any over-molding process, however, the critical element is the bond between the soft elastomeric material and the rigid substrate. This property is essential for part success and a long life cycle for the application in the field."

RTP Company has used its broad portfolio of elastomer resin systems to develop these products that are optimized for bonding to different substrates. RTP 6002 is formulated for improved bonding to PC, ABS, and PC/ABS, while RTP 6003 offers better bonding to PC/PBT and PC/PMMA. "These two products have been developed to bond to standard off-the-shelf substrates as well as with RTP Company's custom compounds and pre-colored materials," added Killian.

For a successful bond to occur during over- molding it's critical to have the proper processing and design conditions. One of RTP's goals during development was to be able to offer products that have the widest possible processing window for the injection molder.

RTP Company also has extensive experience developing rigid substrate materials. Bringing this combination of know-how in both elastomeric and rigid materials enables RTP Company to work with customers on both the rigid substrate and the overmold material in order to optimize the combination for overall performance and bondability.

For more information call (800) 433-4787 or (507) 454-6900, or visit our website at <http://www.rtpcompany.com>

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**GLS is announcing two new grades** in their first of a kind Versollan RU ("*Rubberized Urethane*") line of TPU alloys. The new grades combine a soft, flexible feel with both high performance properties and easy processing capability, a balance of properties not typically associated with TPUs. As with all Versollan TPE alloys, the grades are based on specialty thermoplastic polyurethane from BASF Corporation.

The two new grades, called Versollan RU 2204 and Versollan RU 2205, are some of the softest injection moldable TPU polymers or alloys available at 55 and 65 Shore A, respectively. The grades were designed to exhibit a "warm, rubbery" rather than a "cold, plastic-y" feel. Their low Shore A not only provides a soft, ergonomic comfortable feel, but also can achieve vibration damping, noise reduction, and a non-slip surface, even when wet. The major benefit of the new Versollan RU line is the combination of these soft Shore A properties, along with durable end use performance properties and wide processing window the new grades also exhibit.

The new alloys offer good elastomeric tensile properties such as tensile strength, tear strength, and most notably, excellent flexibility (low modulus/stiffness), that afford a designer the option to utilize a soft TPE in a high performance applications. And, end use durability is exhibited with good oil and chemical resistance, as well as good scratch and mar resistance. Processors and converters will appreciate the ease at which RU 2204 and RU 2205 can be molded. The grades were formulated to have a wide temperature processing window and faster set up times (faster cycle times) relative to TPU polymer. And, they have high flow characteristics to fill complex part designs.

The new TPEs from GLS exhibit excellent overmold adhesion to polycarbonate (PC), and many PC blends such as PC/ABS, PC/PET, PC/PBT, as well as ABS and rigid TPUs. GLS can custom develop a Versollan grade to specific customer requirements if a current grade does not meet the exact needs of the application.

The new Versollan RU grades are targeted for consumer product and industrial applications where a softer, more elastic and flexible material is desired, but where durability in end use properties are required. Ideal applications include soft, mar resistant furniture arm rests, grips, and handles; oil resistant, soft touch hand tools, power tools, and lawn/garden equipment; high performance, non-slip grips, handles and runner boards for sports equipment; and a variety of seals, gaskets, and tags, among others.

For more information contact:

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#### **MATERIAL/PROCESS DEVELOPMENTS**

**Advanced Blending Technologies Inc.** of Perrysburg Ohio helps processors use commodity and recycled plastics in place of specialty grades and recently, has expanded its services to include rotational molders.

Chris Ernst, a blow molding industry veteran and two partners launched ABT in late 2002. ABT uses its proprietary Optimiser-brand software to help processors save 10-35 percent on their material costs. ABT works with its customers to create specialty grades out of widely available commodity grades of Polyethylene, and to use recycled-content PE without giving up properties or yield.

Typically, ABT can devise formulations allowing clients to use 50 percent recycled content. In some cases, that percentage has been as high as 75 percent.

Most of ABT's customer base has come from the blow molding market. The firm began tailoring its software for rotomolding applications in late 2003. Ernst said the technology is applicable to all processing methods. ABT also is exploring the possibility of applying it to other resins.

After an initial consultation, ABT helps clients install Optimiser. ABT then receives a licensing fee for each pound of material produced using its software and blending technology. ABT also can assist clients in material selection and machinery setup.

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

**PolymerPlace.com**

<http://www.Polymerplace.com>

April/May 2004