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PolymerPlace Notes

A plastics technology newsletter
By Margaret Baumann, G.H. Associates

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What's New at Polymerplace

We hope your summer is going well. It's looking like the Fall of 2004 will be a busy one.

- Plastics USA is scheduled for September 28-30,
- The Commercial Development and Marketing Association (CDMA) fall meeting is scheduled September 29-October 1 in Chicago
- The "K"Show will be held October 20-27 in Düsseldorf Germany.

We plan to attend all three events. Maggie Baumann of G.H. Associates will be participating in the conference part of the program organized by SPE as part of Plastics USA. She will be speaking on the trends in the industry reflected through NPEs (National Plastics Expositions) over the years and share some insights as to what we can expect in the future.
If you plan to attend Plastics USA please attend the conference. Ms. Baumann's presentation will be part of the New Technology session.

Course Offered by SPE

SPE are offering a course called "Cyber Competitive Intelligence and the Plastics Industry". This workshop will be offered on September 28th as part of the Plastics

USA seminar offering. It is the first in the series of marketing and management courses that the Marketing and Management Division of the SPE will be developing with CDMA with specific course content for the Plastics and Allied industries.

There will be a course offered at GPEC 2005 (Global Plastics Environmental Conference) on competitive intelligence (February 23, 2005 in Atlanta, GA) and a course in Commercial Development is planned for ANTEC 2005 in Boston. For more information or to register contact Maggie Baumann at 908-832-2207 or visit www.4spe.org. For more information on the CDMA please visit www.cdmaonline.org.

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A growing share of U.S. surveys done on the Internet

We recently read that about a third [32%] of U.S. customer service surveys are now done on the Internet, according to research company field service managers recently interviewed by Next Media Publics.

And for most companies [63%] the share done on the Internet has also increased in the last 12 months.

The Internet share is highest for mid-sized companies-44% for those with revenues between $5-$9 million, and 40% for those with revenues between $10-$49 million. It is lowest for the smallest and largest companies-25% for companies with revenues under $5 million, and 27% for companies with revenues over $50 million.

Half of the respondents were managers with sole or primary responsibility for field work. The rest were members of a team that made field service selections.

About half [56%] of participating field managers work for smaller companies [less than $5 million in revenues]; 19% work for companies with revenues of between $5-$9 million; 22% work for companies with revenues of between $10-$49 million; and 3% work for companies with revenues greater than $50 million.

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GH Associates is undertaking a multiclient study titled “The Global Nylon Industry 2004.” This study will build regional details into a global overview of this important segment of the plastics industry, by polymer producers, compounders, distributors, and end users. Principal sections will include the following:

1. An analysis of nylon polymer producers and capacities, by nylon type, locations, integration, business strategies, and announced future plans.
2. An analysis of the principal nylon compounders and their business strategies, ranked according to size.

3. An analysis of the principal nylon distributors and their business strategies, ranked according to size.
4. An analysis of the principal end use markets, segments, size and growth rates, and trends; this will include multifilament and monofilament fiber, as well as film markets.
5. An analysis of the principal end users, size and growth rates, and trends.
6. Regions/countries included are NAFTA (USA, Canada, and Mexico), Mercur (Argentina and Brazil), EU (including the new members in Eastern Europe), Russia, Japan, China, India, and SE Asia (S. Korea, Taiwan, Thailand, Malaysia, and Singapore).
7. Technology and product innovation trends will be identified and discussed, e.g., specialty nylon polymers and compounds.

The planned completion date is the first quarter 2005. For more information please call Maggie Baumann (908) 832-2207 or Roger Jones (610) 543-9432 or visit www.polymerplace.com.

Industry Perspective by Roger Jones

Crude oil and natural gas prices have stubbornly remained at the high levels that they have been exhibiting over the past several years now. Jon Huntsman, founder of Huntsman Chemical, said recently that the chemical industry is finally showing signs that demand is returning but that petroleum-based chemicals and polymers are still under a tremendous squeeze due to the inability of the industry to pass along all of the cost increases from these essential raw materials. Benzene, a basic feedstock for polystyrene and nylons, has doubled in price in the past 12 months, going from $1.25/gal., to $2.50/gal. currently, with spot prices of over $3.00/gal. reported. No new benzene capacity has been added globally since 2001, which has tightened supplies and added pressure on prices as demand has increased.

Polymer producers have reacted to this situation by terminating price protection in purchase agreements and by frequent price increases – nylons have gone up 10% in the first six months of this year and more increases on the way, in the face of 4-6% growth in demand. For example Ticona has just announced a $0.10 per pound increase for Celcon acetal in North America effective September 1, 2004. Plans for new capacity in the US for many polymers, particularly polyethylene, have been shelved indefinitely if not cancelled outright.

Processors have been caught in the middle of rising material costs and the unwillingness of many customers to accept pass-throughs. Buying materials from overseas doesn't help as much as it used to because of the weaker dollar. Purchasing cooperatives can help in this situation. Organizations such as Mid-America Plastics Partners (MAPP) pool purchases of their members and thus are able to obtain volume discounts, which are passed along.

Processors also need to look hard at their scrap rates and take measures to reduce them. The 2003 SPI Financial and Operating Ratios survey of plastics processors showed that the average scrap rate of those studied was 1.2% while the top 10% recorded a scrap rate of zero. Scrap rates can usually be reduced by improving process control over such variables as temperatures, pressures, injection speeds, fill rates, etc. It is also a good idea to review the materials being used – perhaps using a different grade may be better suited to your needs – as well as the manufacturer's recommendations for control settings. Sometimes mold maintenance is needed to eliminate flash.

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NOVEON RECEIVES 2004 FROST & SULLIVAN PRODUCT LINE STEWARDSHIP AWARD

Noveon is a leading global producer and marketer of technologically advanced specialty chemicals for a broad range of consumer and industrial applications with revenues in 2003 of $1.1 billion. Noveon is headquartered in Cleveland, Ohio, with regional centers in Brussels, Belgium, and Hong Kong. In June 2004 The Lubrizol Corporation acquired Noveon International, Inc.

TPU technology leadership, excellence in customer service, application development, technical support, and wide product range were the reasons for Frost & Sullivan awarding Noveon the 2004 Frost & Sullivan Product Line Strategy Leadership Award. Frost and Sullivan analysts concluded that Noveon provides well-positioned, seamless service through offices and agents in key industrial sectors around the world. Noveon's technical support is unmatched in the TPU market with technical representatives located in North America, Europe and Asia.

For more information on Noveon go to http://www.noveon.com. For more information on the consulting firm of Frost and Sullivan visit www.frost.com.

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POLYMER MARKETS

Consumer

Thany & Brown, LLC of Everett, WA recently partnered with ultra-soft thermoplastic elastomer (TPE) alloy manufacturer GLS Corporation of McHenry, IL, to create a new line of high heel shoe inserts marketed under the PepnStep™ trademark. In a marketplace replete with "high heel comfort solutions", PepnStep promises women metatarsus relief with the only insole that extends the full length of the foot, plus the insole is very thin and fits unobtrusively into the shoe. Most importantly, the very soft TPE insole provides cushioning and relief in the part of the foot that needs the most support when wearing a high heel, the ball of the foot and toe areas.

Moreover, according to Thany & Brown's product developer, owner and manager Marion Brown, the company is the first to offer a high heel insole developed for women by women who actually wear these shoes. In order to provide the fit and comfort that Mrs. Brown's design demanded, she turned to GLS Corporation for

a material that was soft, cushioning, yet durable and resilient enough to provide a soft footbed despite hundreds of foot pounds of pressure loading the insole at key pressure points. In essence, what was needed was a material solution that would make a high heel truly comfortable, a very tall order indeed.
GLS Corporation, a leading TPE compounder, stretched the boundaries of the product category a few years back by creating products that were so soft that they register as Shore 00, because they are nearly liquid. Offering benefits like water clear, gel-like softness with a warm tactile feel with high elongation characteristics, the Versaflex® CL2003X grade materials are known for being the base material for products in the shoe, inserts, bike saddle, furniture padding and ergonomic grip categories. With a 30 Shore 00 value, the Versaflex material offered the gel like properties that the PepnStep insole required, and did it in a thickness that met the need for a low volume shoe. Because it is clear, the insoles could be molded in a nearly invisible way, so only the most astute observer could detect that there was anything different a pair of heels that had the insoles in them. Most importantly, the CL2003 did not “deflate” under load, staying springy, soft and cushioning long after competing silicon products had given out even at just 1/8” in width.

Thany & Brown adopted an unusual yet highly practical test for the new insoles. Rather than going with a clinical test, they opted for a real-world “wear” test. Mrs. Brown challenged women to give the PepnStep product a try, and see for themselves the difference that a thin, 30 Shore 00 hardness insole could make on their feet after a long day in high heeled shoes. Brown herself pitted her prototyped silicone insole against the TPE offering, wearing one sole in either shoe and declared that the TPE insole was much more supportive and comfortable than her first efforts. In the wear test, many scoffed that the product would make any difference, as they were
jaded by lesser efforts to solve the issue—but were amazed when the small, thin sole provided the right fit and low-volume comfort to make even the most high altitude heel much more appealing for all-day wear. The combination of the right material, the low volume insole, and the shape of the product encompassing the entire foot proved to buyers across the United States that the high heel could be comfortable, after all.
For more information on GLS Corporation products and services contact: 1-800-457-8777.

PROCESS DEVELOPMENTS

GLS plastics has recently developed a guide on How to Optimize Adhesion in Hard-Soft overmolding. GLS gas supplied elastomeric raw materials to the industry since 1979.
Backed by charts and graphs as well as several application photos, the literature, entitled *How to Optimize Adhesion in Hard-Soft Overmolding*, is an insightful guide. It is especially helpful for those processors who want more information about difficult hard/soft applications, or those who want to know more about

running TPEs in their molding operation. A listing of 10 overmolding tips is provided, as well as technical subjects like tips on tooling when tackling tough nylon overmolding adhesion problems.
For a free copy of the guide contact, GLS Corporation, Marketing Department, 833 Ridgeview Drive, McHenry, IL 60050-7050. Telephone: (815) 385-8500 or (800) 457-8777. Fax: (815) 385-8533.
E-mail: info@glscorp.com Web Site: http://www.glscorp.com

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Magee Plastics Company has broken new ground in the use of polyphenylene sulfide (PPS) by developing commercial procedures for pressure-forming and vacuum-forming PPS sheet. This work was based on the use of Ensinger/PennFibre's 1/8-inch PPS sheet, which is made with thermoformable Fortron® PPS resins from Ticona, the technical polymers business of Celanese AG.

The sheets used involved Fortron® PPS unfilled, glass-filled, and impact-improved thermoformable grades. These grades have high strength-to-weight ratios and continuous service temperatures up to 450°F (232°C) depending upon composition. Magee Plastics has completed its first commercial thermoformed PPS end use, which involved elements for a defense-related application.
Mike Gehrig, General Manager at PennFibre, notes that this was a collaborative effort by Magee Plastics, Ensinger/PennFibre, and Ticona. "As our developmental efforts progressed," he says, "Ticona developed new Fortron® PPS formulations to match Magee Plastic's growing understanding of what properties are needed for thermoforming. As a result, Ticona now offers the only line of formable PPS products and we offer the only line of formable PPS sheet."
Ensinger/PennFibre thermoformable PPS is sold as monolayer sheets. The company also offers five grades of sheet and rolls made from Fortron® PPS for fabrication in widths to 48 inches (122 cm) and thicknesses between 0.01 and 0.25 inch (0.25-6.3 mm). Its PPS sheet is available with optional backings of glass fiber, polyester fabric and other materials that create a gluing surface for strong adhesion in multilayer structures.

Fortron® PPS is a high-performance material processed between 550 and 600°F (288-316°C). In use, it has excellent heat and chemical resistance, as well as good electrical properties, high hardness and rigidity at elevated temperature, and exacting dimensional stability.

For information about Magee Plastics and its products, contact: Sheridan Kelly, Magee Plastics Company, 303 Brush Creek Road, Warrendale, Pennsylvania, 15086, USA. Phone: 1-724-776-2220. Email: skelly@mageeplastics.com . Or visit: http://www.mageeplastics.com .For information about Ensinger/PennFibre's thermoformable PPS sheet and other products, contact: Ensinger/PennFibre, 2434 Bristol Road, Bensalem, Pennsylvania, 19020, USA. Phone: 1-800-662-7366. Or visit: http://www.pennfibre.com .

For information on Fortron® PPS for use in thermoforming and other applications, contact: Ticona, 90 Morris Avenue, Summit, New Jersey, 07901, USA. Phone: 1-800-833-4882 or 1-908-522-7500. Email: prodinfo@ticona.com . In Europe contact: Ticona GmbH, Professor-Staudinger-Straße, D-65451 Kelsterbach, Germany. Phone: +49-(0)180-584-2662 (DE) or +49-(0)693-051-6299 (EU). Email: infoservice@ticona.de . Or visit http://www.ticona.com .

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.
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