

PolymerPlace Notes

A plastics technology newsletter

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What's New at Polymerplace

Happy New Year! Here's to hoping that 2003 is better for manufacturing in North America than the last two years have been. Polymerplace has a suite of services that it can offer to help you position your business for success in 2003. E-mail us at info@polymerplace.com. We will get back to you with more detailed information about our services and offer you a free no obligation consultation.

Feature

Strategic Management for the Plastics Industry was written by Roger F. Jones, one of Polymerplace.com's founding partners. It was published in September 2002 by CRC Press. Endorsed by the Society of Plastics Engineers, this book

covers all of the bases in the plastics industry, from polymer manufacturing, through compounding, distributing, processing – even machinery and additive suppliers are included – in a thoughtful, down-to-earth discussion of the particular problems faced by managers in running their businesses. Worried about globalization? Can't decide how to staff and organize your business? Do general management texts fail to cover your special problems? Look no further – it's all in here.

Order your copy today – use our link to <http://www.amazon.com>.

We began showing highlights from each chapter in our last monthly newsletter. This issue will cover Chapter Two – Foundations of the Industries Segments. This chapter covers the five major units of the plastics industry: polymer manufacturing, compounding, distribution, processing, and the auxiliaries group (machinery, additives, etc.). Except for distribution, each unit is shown to be based on and shaped by technology. The interplay of the various elements of technology differs for each unit and how it is applied. The importance of continuing to upgrade the business' technology is stressed, and ways to accomplish this and protect it are explored. How to access outside technology via licensing and joint venture is explored as well as the benefits of sharing one's own technology via these routes. Other foundations vary from unit to unit, but include such factors as critical mass, routes to market, supplier and customer relationships. The importance of each basic factor is explained in relation to how it must be utilized to advance each particular business type.

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Feature Story

State of Manufacturing /Outlook for 2003

Recently the Wall Street Journal reported that manufacturing activity expanded in December for the first time since late summer, a sign that the U.S.'s hard-hit industrial sector is beginning to improve. The Institute for Supply Management said its December index of manufacturing activity rose to 54.7 from 49.2 in November, the largest increase since June 1991 and a much larger rise than economists were expecting. Readings above 50 indicate expansion of activity in the manufacturing sector, while readings below 50 denote contraction. The index was 48.5 in October and 49.5 in September.

The biggest surprise in the report was the change in new orders reported by manufacturers. The institute's index of new orders rose to 63.3 from 49.9 the previous month, the largest one-month increase in the new-orders gauge since a jump of 18 index points between July and August 1980. New orders are closely followed by economists because they tend to signal future economic activity.

Every month, the institute surveys 450 supply managers in industries ranging from transportation to electronics to chemicals. The possibility of war with Iraq remained a source of great uncertainty for many of the respondents to the survey. In one alternative explanation for the December improvement, a survey

respondent said that the timing of the holidays mid-week might have led some customers to increase their orders in early December to cover their needs. In our discussions with raw material suppliers 2002 turned out a little better than they had expected, yet most are not expecting more in 2003 than they realized in 2002, especially not in the first half. Plastic raw material manufacturers will attempt to raise prices this year but probably won't succeed in the first quarter other than in styrene based materials (ABS and polystyrene) where the feedstock and supply situation is uncertain.

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POLYMER MARKETS

Transportation

In recent newsletters we have covered [color and special effects offerings](#) from major resin suppliers like GE, Bayer and Dow. On January 8, [DuPont revealed "Catalyst"](#) at a press conference at the DuPont World Automotive Headquarters in Troy, Mich.

"Catalyst" integrates 96 custom interior and exterior design elements and the latest materials and finishes into six proposals for concept vehicles, according to Larry Cole, executive product planning manager, interior systems, DuPont Automotive.

The six vehicle concepts use 19 different DuPont technologies from 12 DuPont businesses. The unique styles are designed to reflect current trends in the market and demonstrate how they may develop in the future. Color design is an integral part of branding.

"Catalyst" design elements were inspired mostly by sources outside the automotive design industry. They combine urban motifs, along with inspiration from nature, diverse textures and seasonal elements into key themes that are influenced by design from different regions of the world. For more information on "Catalyst" contact John Pringle DuPont Automotive,

Tel: 248-641-1446 Fax: 905-821-5230 john.g.pringle@can.dupont.com

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Telecommunications and Recycling

Chances are if you're a cell phone user, you have one or more unused phones lying around the house. Cellular phones are becoming more advanced, leading the average consumer to upgrade frequently to benefit from the latest technology. These [phones pose an increasing environmental disposal problem](#), prompting ten leading mobile phone manufacturers, including Nokia, Motorola and Sony Ericsson to address the issue as part of an initiative from the United Nations Environmental Program.

With more cell phones sold than any other major electrical device, it is crucial that the consumer take responsibility for their inoperative cellular phones. The rechargeable battery can easily be recycled by dropping it off at any retailer associated with the Rechargeable Battery Recycling Corp., including Radio Shack, Target and Best Buy. The rest of the cell phone is more challenging.

Cellular phone companies have taken this into consideration – Nokia and Motorola have begun choosing plastics or metals that can be more easily recycled and Nokia has even considered using biodegradable plastic. Several companies including AT&T Wireless, Motorola, SBC (Cingular Wireless) and Verizon Wireless have approached the problem from a different angle. They have created the Call to Protect program, which refurbishes old equipment to be distributed to local agencies that help victims of domestic violence. 50,000 cell phones have been collected in the past six years.

-- To find a location to recycle rechargeable batteries: <http://www.rbrc.org/index.html>

-- To donate a phone to Call to Protect, go to:

<http://www.wirelessfoundation.org/12give/index2.cfm>

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Construction

[Plastics have claimed several more victories in their aim to replace steel](#) in a wide variety of applications. These include the first PET (polyethylene terephthalate) material strong enough to withstand very high temperatures and the first plastic-reinforced bridges. Plastics have even become increasingly popular in steel-dominated industries such as automotive and construction because of their lightweight strength.

Two plastic bridges, some of the first of their kind in the world, have been constructed in the U.S. and the U.K. The bridge being constructed in Vermont, a 44-meter structure reinforced with plastic instead of steel has been under construction since August of 2002. The bridge employs two layers of rebar prepared from glass fiber-reinforced polymer.

Benefits of the switch from a steel rebar to plastic include its non-corrosiveness and a significant decrease in weight. A steel rebar weighs approximately a pound and a half per foot while the new rebar weighs in at less than half a pound. The only drawback is the higher cost of the material, which will add \$50,000 to the overall cost.

The other bridge in Shrivenham, Oxfordshire utilizes a new type of composite material called ASSET which stands for Advanced Structural Systems for Tomorrow's Infrastructure. The material is strong yet lightweight and made of glass and carbon fiber-reinforced polymer.

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POLYMER MATERIAL DEVELOPMENTS

[Cargill-Dow's NatureWorks](#) packaging material has been used in Europe and Asia for extruded film and thermoforming applications such as cups and blister packaging. The material also can be used for injection stretch blow molding for bottles. Recently Sony Corp. decided to use the natural resin for a portable radio/cassette player to be sold in Japan, said Jim Hobbs, commercial director of packaging with Cargill Dow. This is the [first injection molding application](#). The Asian and European markets have been quick to accept the material, made with polylactic acid processed from corn starch.

The company, a joint venture between Cargill Inc. and Dow Chemical Co., opened a plant last year in Blair, Neb., to produce the resin from the PLA base. Use of the material for injection molding could help boost acceptance in North America, where the audience is more skeptical, Hobbs said.

Another Japanese firm, Fujitsu Ltd., is using the material for a laptop computer that it plans to launch in 2004, Hobbs said. The company expects several North American customers to start rolling out the material commercially in the United States by the first quarter of next year.

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PROCESS- RELATED DEVELOPMENTS

[Hewlett Packard Co.](#), announced December 16th it has partnered with Sony Corp., Electrolux AB, and Gillette owned Braun GmbH to comply with the new WEEE directives, formally adopted by the EU Parliament December 18th. Starting in September 2005, the [responsibility of recycling products](#) in Europe falls to the manufacturers. The companies will aim to find high-quality recycling services to fit the European market and minimize the costs passed onto consumers.

In North America, Hewlett Packard Corp. announced it would support some sort of take back legislation for the state of California. HP will support a bill that covers only monitors from households and requires companies to be responsible for their own brands.

A new report from **Resources for the Future** claims that European-style mandatory take back programs are not feasible in the United States because they lack flexibility, but that voluntary programs fall short of achieving overall recovery goals. The report cites two main reasons. "First, industry bears the cost of voluntary programs but they do not reap the benefits of any environmental improvements associated with their efforts." The report says a second reason voluntary programs fall short is because "consumers don't have incentives to return products for recycling." We disagree. Using the cell phone initiative discussed above as an example, it seems there should be a creative solution that would be a win-win. The American consumer will re-cycle electronic products if they are offered a reasonable program.

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PRODUCT DESIGN AND DEVELOPMENT

[Ticona](#), the technical polymers business of Celanese AG will feature its broad engineering thermoplastic portfolio in Booth #6328 [at the National Design Engineering Show](#) during National Manufacturing Week in Chicago from March 3 to 6, 2003. "**Making Performance Dreams a Reality**" is the theme of the Ticona booth that will showcase the possibilities that Ticona® plastics offer for Automotive, Industrial and Consumer applications, including Medical Devices and Packaging. In addition, Ticona will highlight new technologies for engineering plastics, including fuel cells, high performance nonwovens, and others. Ticona also will host a seminar on "**Designing Gears with Engineering**

Thermoplastics,” on Tuesday, March 4th, at 10:30 a.m. in the South Hall at McCormick Place Exhibition Center.

See <http://www.designengineeringshow.com> for more information about the NDE Show.

The [automobile cup holder](#), once an infrequent feature found only in family-oriented vehicles, are becoming increasingly popular and can be found in everything from minivans to economy cars to new trucks and sport utility vehicles. While the holders are now common place, auto sellers still use the devices as “sell points.” According to a survey issued earlier this year by Irvine-based car buying service Autobytel, one in four car shoppers would switch brands or even consider an entirely different kind of vehicle just to find the perfect holder. The same survey found that roughly half of all drivers use their cup holders every day, and a similar number report feeling “extremely satisfied” with their current holder.

Surprisingly, the cup holder (which costs less than \$20 per holder per car) has become a priority with the buyer when selecting a car or truck. Think about this example when you look at marketing your own products. Is there a relatively inexpensive feature that can influence a much larger purchase?

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[3D Systems Corp. announced it has released four new SL materials for its stereolithography \(SLA\(R\)\) systems:](#) Accura™ SI 10, SI 20, SI 30 and SI 40 materials. The Accura SL material line provides a broad range of materials with high-temperature, durable, and general purpose properties that satisfy different customer applications. The new materials are for use on the solid state systems across the SLA product line.

The first of the four new SL materials is the Accura SI 10 material. This is a superior general purpose material offering an exceptional combination of long vat life and accuracy in part building resulting from its high green strength, humidity resistance and the advances 3D Systems has made in material process, which provides speed without compromising part quality. The SI 10 material creates parts with a glossy top finish, excellent for thin wall parts and ideal for master patterns.

The next in line is the Accura SI 20 material, which is a durable white material offering high green strength, good throughput and humidity resistance. This material is ideal for snap-fit testing and RTV applications. The third material offered is Accura SI 30 material. This is a fast/durable material ideal for customers needing a high-photo speed, low-viscosity material for functional prototypes.

The fourth material in the Accura SL materials family is the SI 40 material. "Accura SI 40 material is the first SL material on the market that combines high

temperature resistance with toughness. With properties that mimic Nylon 6.6 this material is ideal for automotive applications including under-the-hood applications, wind tunnel testing, and flow analysis," said Rudgley. "The Accura SI 40 material will produce parts with optical clarity, high flexural modulus and moderate elongation to break, with a high heat deflection temperature allowing it to be drilled, self-tapped and bolted on for true functional testing.

For more information visit <http://www.3dsystems.com>, or call 888-337-9786, extension 8228, or 661/295-5600 internationally.

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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