Mel Ettenson's
GLOBAL PLASTICS LETTER
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"A World of Plastics Information"

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OUR TWELFTH YEAR

Dear Colleague:

Recession recidivism rejected…and the tentative global recovery is beginning to gain momentum with permanence lurking but not overtly. Rising global commodity prices abound…copper, silver, crude oil (heading for $100/barrel), steel and aluminum are but a few examples driven by demand in Asia – yet inflation remains in check as unemployment remains high. (An economic link). Non-concomitant factors are at work here as central banks continue to orchestrate lesser of evils strategies. What remains for our economic outlook for the remainder of 1Q 2011 is a locus of energy-affected factors with the tenuous middle east (read Egypt) strategic situation adding uncertainty, which markets abhor. A trying time for our industry as it emerges from the great recession! Meanwhile profits are popping for the major resin manufacturers as they announce 2010 earnings – led by Dow and DuPont, as well as the other major petrochemical producers. Merger and acquisition activity is on the rise with the number of transactions likely to set a record in 2011 after falling in 2008-2009 and picking back up in 2010. The value of deals globally is expected to be up 10% (20% in the U.S.) passing the $3-trillion mark ($1 trillion in the U.S.).
Sectors that will be targeted, not surprisingly, are energy, technology, health care and life sciences. Companies with annual revenues of $100 million and more are most likely to be joined.
Social networking is more than a trend…more like a happening, so we'll address how to best manage this 21st century phenomenom here: Businesses have sprung up to monitor mentions of your company on Twitter, Facebook, LinkedIn and other sites…check out *Sprout Social* and *Involver* – they take out the mystery and save time as well as adding understanding.

TRENDS: The newest edition of *Facing The Forces Of Change*, subtitled…*Decisive Actions For An Uncertain Economy* is available at: http://www.nawpubs.org. This publication from the National Association of Wholesaler-Distributors (NAW) is a ground breaking treatise that forecasts moves that our industry, both distributors and manufacturers, should take as the supply chain evolves into 2015…recommended reading! Consider this…the age of "average" is over – the age of "extra" is here…how to add extra to the products and services we all provide?

China imposes provisional anti-dumping duties on caprolactum imports from the EU and the US – higher nylon prices could follow. Another example of China's influence on our industry has been the shortage of fluorspar (part of China's rare earth mineral trove), a mineral essential to the production of many fluorochemical products including PTFE. The U.S. plastics sector is recovering quickly from the great recession but is only halfway back to 2007 levels, according to the National Association of Manufacturers – how does your company benchmark? Univenture's Biobent Polymers introduces its Panacea bio-composites product line – we are holding a press kit binder made of this newest bio-plastic that is purported to reduce up to 40% petroleum content.

OUTLOOK ASIA: **by Mal Binnie our Pacific Rim correspondent based in Australia**

As we enter the year of the Rabbit, expecting continued recovery, we can also expect cautious and reserved action by the leading Pacific Governments. Australia is undergoing recovery from the floods and fires which have devastated huge areas of the country and it will be some time before the Plastics industry can achieve its 2011 targets. However the strong $Aus and rebuilding projects will assist in the business recovery. NZ, after earthquakes and mining disasters, is well on the growth path. There are always interesting stories in the plastics world and the fact that a Northern State in India has decided to ban the sale of plastic bags near bodies of water, challenges the logic of plastics disposal - why not make the bags of bio-degradable plastic? Milacron US expects to double its machinery output in India and continues to invest as the Indian market continues its rapid growth. Also Japan's Nissei intends doubling its plant near Mumbai another confirmation of market growth. A Chinese diplomat is reported to have asked India to lower its high tariffs on Chinese injection moulding machines in a desire to capture a higher share of the growing Indian market for China. IAC Group US has expanded into India with the acquisition of Multivac Pte Ltd, Delhi maker of automotive components. India is on track to follow US and China in third place as the automotive market grows the need for high tech plastics. BASF has announced further investment in its Shanghai plant, over 4 years this will be the largest plant in the BASF network. The Engineering plastics market in China continues to grow rapidly and another project by Arkema for PVDF capacity will be on line mid 2012. Strong demand for Nylon 6 also continues in China and is growing faster than the global demand. There is continued movement by Companies to reduce costs and yet expand their operations by moving new operations to other coastal provinces than Shanghai. Sometimes moving inland is the answer but other coastal provinces provide lower costs than Shanghai. Germany's LPKF has opened new sales and service operations in Shanghai and Yokohama, Japan. Scotland's McGavigan, a producer of in mould decoration and other automotive components using PC film is planning expansion into Asian markets. Effective April 1 the JV between Styron and Sumitomo will be renamed Sumika Styron Polycarbonate Ltd. The Obama/Hu discussions appear to have given priority to US firms exporting to or established in China so they benefit from the growth of the China market.

OUTLOOK EUROPE: **by Ralph Ammann, our European correspondent based in Germany**

The industry is still gathering speed in February with its acquisitions and new products. Thus, international CEPSA Qumica Group confirmed the re-opening of the Spanish plant, Artenius San Roge. CEPSA had acquired the plant with its capacity of 175,000 tons from La Seda de Barcelona and with this plant CEPSA will enlarge its presence in polyesters. In Roque/ Spain, the company already owns a production plant for both PTA and PIA which has a capacity of 480,000 tons as well as a further PTA-plant in Montreal/ Canada with a capacity of 550,000t per year. The recently acquired plant shall be renamed CEPSA Quimica PET and engage 40 employees. The deal is worth approx. 32 million Euros and according to CESPA information makes the company being one of worldwide two enterprises owning PTA, PIA and PET production plants. The

German PU-manufacturer Hennecke GmbH meanwhile opened another customer centre at its headquarters. In addition to the securely established customer centre for CSM technology, the company now also owns a customer suitable for high-volume Resin Transfer Mouldig (RTM) applications. The centre should allow raw material suppliers as well as interested enterprises to test new mixtures and product parts before producing them high-volume. At the same time, interested companies get the possibility of acquainting themselves with RTM technology and its possible usage in connection with the established mixheads and patented constant-pressure injectors. Engel Austria, introduced a new and very interesting production method. Together with its partners Hummel-Formen and KVT Bielefeld, 'Engel joinmelt' was introduced, a method which allows hot gas welding directly in the mould and which shall be suitable for all thermoplastics. According to Engel it shows huge potential in the processing of glass-fibre reinforced polyamides for deployment in media-bearing parts in engine departments. BASF expanded its range of extruded polystyrene hard foam panels (XPS) by the new insulant Styrodur HT. According to its specifications, it stands out due to its high-temperature resistance up to 105°C (221°F) and is suitable for all applications which require high temperature resistance, high compressive strength, low water absorption, high insulation performance and resistance to rot. BASF offers the insulant with nominal compressive strengths of 300kPa and 600kPa. Schütz GmbH & Co. KGaA, the world's largest IBC manufacturers, together with Sabic Europe introduced ICP4907S, a new type of HDPE for high-volume containers with more than 1,000 liters content. The material exhibits an outstanding balance between rigidity and viscosity and its high tear strength and environmental sustainability.

EDITOR'S NOTE: Bill Shield's column OUTLOOK NORTH AMERICA will return next month.

PRICING: Prices are up this month for acrylics, nylon, PS, UHMW-PE – many are double-digit increases, which is newsworthy after selective single digit inflation over the last several years.

MANUFACTURER/DISTRIBUTOR BRIEFS AND EXPANSIONS: New producer of Foam-Core PE sheet is Varioline Systems, a jv of PolymerPark and Inspiron Systems (subsidiary of Nova Chemicals)…part of product line is reinforced with long glass fiber, an innovation. DAK Americas, LLC (owned by Alpek, a division of Mexican conglomerate Alfa SAB de CV) completes the Eastman PET purchase for $600 million. Meanwhile OCTAL of Oman completes expansion of its PET resin and sheet facilities, adding 400,000 metric tons at its Salalah plant. Primex adds considerable PETG sheet (up to 58 inch wide) extrusion capacity at its Richmond, Indiana plant, reflecting continued growth is this polyester product. SABIC IP's Lexan Thermoclear Ultra-Stiff sheet (43,000 m2 worth) used as roof in stadium in Poland, adding to this application in 50 stadiums globally. Bayer MaterialScience expands its PC film production at its Deerfield, Mass facility. Also appoints Germany's Albis as its PC resin distributor in Russia. Arkema adds capacity already to its soon-to-open Kynar® PVDF resin facility in Changshu, China…a 50% jump by mid-2012. NAW announces its Chairman-Elect is to be Mark Kramer, CEO, Laird Plastics. ThyssenKrupp distributes shapes in Europe under the ThyssenKrupp Plastics Internatioinal GmbH banner and in North America as AIN Plastics.

INDUSTRY INTERVIEWS: **Banu Kukner, Global Communications Manager, SABIC Innovative Plastics, Specialty Film and Sheet**. We interviewed Banu via conference call and by e-mail at her office in Bergen op Zoom, The Netherlands. Previously she communicated at Unilever and Finansbank. She spent several years with G.E. Plastics in Pittsfield, Massachusetts.

Q. What other countries' railways are interested in the thermoformed Lexan® sheet application for train window frames you recently announced? Why?

A. As requirements around for material solutions that can help reduce the total system cost and create fuel economy through light-weight with compliance with regulations, continue to advance in public transportation and railway sector in Europe, we see polycarbonate sheet as a clear opportunity in window frames as well as in other interior applications to help our customers win with improved performance and faster cycle times, while avoiding the multiple secondary operations required for SMC. We believe reducing the weight of carriages and the production cycle times will continue to drive demand for Lexan polycarbonate sheet material in window frames as it brings cost out for the Converter and the end-user around the world.

Q. Are there other converters who could thermoform this sheet? Who are they?
A. Yes, we are working with other converters in various countries who are doing similar process as Plexx.

Q. What makes this an unusual application?
A. SABIC Innovative Plastics team provided to our customer Plexx with a customized, high-end polycarbonate sheet, enabling them to create a unique product that stands out in the marketplace and, most important, meet their customers' needs. Lexan F6000 sheet, which can be custom colored, delivers exceptional color and texture retention after thermoforming and provides durability for the demanding public rail environment. For this particular example, SABIC Innovative Plastics' ColorXpress facility delivered an exact match to the custom red-orange tint that is the brand of Norwegian State Railways. The company also customized the flame retardance of the material to comply with fire/smoke/toxicity (FST) standards mandated in Norway. Next to the weight reduction and the better cycle time advantages, the material complies with railway fire protection requirements: UL94 V0 at 1.5 mm flame retardance according to ASTM E162, and low smoke (ASTM E662) and toxicity (BSS 7239 and SMP 800 C) performance.

Q. Are there any unusual properties of the sheet (what is the commercial designation?) that make this a breakthrough application?
A. Lexan F6000 sheet - an opaque product - available in a variety of colors or metallic effects. This product is also able to pass stringent requirements for the British Rail Standard BS 6853 Category 1A. It provides flame resistance meeting ASTM E162 (V0) at 1.5 mm, low smoke (ASTM E662), toxicity (BSS 7239 & SMP 800 C) requirements, making it an excellent candidate to replace polyvinyl chloride (PVC), polyester, vinyl ester, SMC or phenolic FRP materials used in many interior train applications including interior panels, window frames, seat backs and trays, ceilings and other large interior parts. Lexan F6000 sheet offers a number of important advantages over traditional SMC for window frames. First, it is significantly cost-effective, even though only the periphery of the sheet is used, the center portion is recycled. Second, by streamlining the production process, the SABIC Innovative Plastics material cuts cycle times by up to 80 percent vs. SMC. Molded-in color avoids the need for secondary operations such as painting and sanding; thermoforming does not require gluing or hand work; and the material does not need a curing step – all of which were required with SMC frames. Lexan F6000 sheet also offers sustainability advantages over SMC, including reduction of volatile organic compound (VOC) emissions associated with conventional painting and curing. Because Lexan F6000 sheet is approximately 30 percent lighter than traditional SMC, window frames for railway carriages made with the resin can potentially contribute to fuel conservation. This opaque PC sheet is produced with a special, durable texture that avoids the appearance of abrasion and fingerprints, helping to maintain an attractive appearance under heavy use conditions.

…to be concluded in the March 2011 issue.

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