Mel Ettenson's GLOBAL PLASTICS LETTER

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Dear Colleague:

The global economy appears to be entering a cooling down period- but with productivity high due to training , automation and "people power" and a forecast of oil prices backing down from current spikes – resumption of single digit growth is assured in most nations. We are continuing to see the effect of the internet evolution bring information at unprecedented speed(more on this below) to most marketplaces – this drives growth and productivity despite some braking actions being taken by central banks and OPEC countries. The bottom line – sustained growth –low inflation(around 3% this year – continued expansion.

We have just returned from NPE 2000 in Chicago and in a word – e –commerce! The state of our global plastics industry is strong –with unprecedented growth continuing unabated it would appear. A record attendance of close to 100,000 people, viewing 2000 exhibits which spread out over 2,000,000 square feet at McCormick Place, were buying and selling materials , equipment and services. As for services – there were 18 e-commerce companies offering materials for purchase – three years ago there were none (NPE is an every 3 year event) – and the real question is how many will be standing in 2003?

We noted two websites that are offering sheet, rod, tube and film for sale on the internet – they are: www.supplybase.com and www.fobplastics.com .

In addition to the above there were plastic resins for sale through the following sites: www.suppliermarket.com , www.processzone.com , www.polysort.com , www.polymersite.com , www.plasticssearch.com , www.plasticsnet.com , www.plasticscommerce.com , www.netvendor.com , www.chematch.com , www.chemconnect.com , www.commerx.com , www.qplastics.com , www.gepolymerland.com , www.lotsofplastics.com , www.allplastx.com , www.omnexus.com . When you add in the numerous sites offering machinery and equipment and information from industry publications (such as this one) , you can begin to see the enormity of these internet initiatives, which are dominating every business activity with information and financial transactions. The apparent leaders are gepolymerland.com and omnexus.com (an alliance of BASF , Bayer , Dow , DuPont , and Ticona/Celanese AG) . Omnexus will first be live in October , but due to the size of this alliance's members we expect a significant impact to be made.

Although the materials industry is concerned largely with resin , we expect that all or some of the 20 existing sites will add sheet , rod , tube and film as have the two mentioned above. Once again this will begin to change the business model which has existed for over 50 years.

PRICING FORECASTS: More resin price hikes are in the works – PC , PET , ABS are all experiencing double digit (in cents/pound) increases with PS and PP soon to follow. As a further indication of the paucity of supply vs strong demand , almost all recycled resin prices have gone up in 2Q led by HDPE , PET , PS , PVC and PP – these mostly of the single digit variety. Even high performance materials (HPM) are affected – LCP's are joining the rush to inflationary trends.

On the brighter side – some increases in global capacity will start showing up on world markets and tend to ameliorate some of the pricing pressure – some examples are: Dow is expanding a PC production site in Germany and will come on stream in September ; Ticona is planning a new plant for UHMW PE in Texas which adds to their world-wide capacity currently in Germany only. Meanwhile in Asia , Shanghai Petrochemical is building a new PE plant due to come on stream in 2002 ; Taiwan Polypropylene Co.together with Montell are putting in a PP plant in China, joining Elenac's PE plants in Germany and France in increasing global polyolefin capacity thus ameliorating the pressures of increased demand on world market prices for this most basic resin.

TRENDS: Now that GE has launched their acquisition bids for both Cadillac and Commercial, the face of plastics distribution has been changed irrevocably – as has the strategic relationship between manufacturer and distributor. With the vertical integration of a major sheet extruder(as is GE Plastics) into distribution , can the likes of Bayer-Sheffield, Spartech , CYRO , etc overlook the possible opportunity of captive distribution? Or will the race be on for other manufacturers to partner or forge formal alliances with regional distribution?

When the internet initiatives discussed above are overlaid against this new scenario , we have the makings of a revolution in our industry (S,R,T,F) beginning to unfold. Only those companies, distributor and manufacturer alike, which act quickly and wisely will succeed . In this process , the size of the company is only of minor importance , as the internet offers opportunities , especially for smaller businesses , to present their product range to a vast market without the need for extensive investment . Thus the lines are being drawn for the giant combinations versus the hordes of numerous small alliances – each seeking a place in this global plastics market . The outcome? The winners? – this next 6 months will begin to tell of a historic change underway.

It should be said that despite the talk about disintermediation (read this as mfr.speak for substitute channels traditionally filled by the distributor), in 1995 there were 405,000 U.S. firms engaged in distribution , operating from 518,000 places of business (U.S. Dept of Commerce data) . Further statistics show that wholesale distribution has grown at an average annual rate of 5.5% while manufacturing has grown at 5.2%. Thus perhaps this is driving the current trend to forward integration . Another story unfolding , coming at us from the "side door" may be the W.W.Grainger model – which according to an interview with their CEO appearing in *Business Week* is experiencing sales on the web (OrderZone.com and Works.com) at the rate of $250 million this year – up from $13.5 million in 1998! There are some plastic products on this site – could this be an offset to the mega-webs (plastics only) ?– Grainger does have the infrastructure in place – worth watching. They claim e-commerce lowers transaction costs from $55 per traditional purchase order to $3 per order over the net.

For customers who demand "personal" service by an inside customer service representative (CSR) , check out **helloOperator** at www.helloNetwork.com which can put your sales force online so they can talk directly to customers via live video-with-audio.

MERGERS , ACQUISITIONS , ALLIANCES AND EXPANSIONS: Ticona and DSM Engineering Plastics have signed an agreement to conduct a feasibility study for building a PBT plant in Europe – Ticona markets under the Celanex name and DSM as Arnite.GE Plastics has formed a joint venture with Energy Conversion Devices to produce optical media products using the new Diamond Visualfx grades of PC and ABS which are eco-compliant.Piedmont Plastics adds thermoformers to their fabricating division.Spiratex (UHMW extrusions) adds 20 lines to its already existing 120 lines.Eastman Chemical has signed a memorandum of understanding with India's Reliance Industries Ltd. To develop the market for Spectar® polyester co-polymer in the Indian subcontinent – planning 10,000 tons of PETG resin – who will convert and sell the sheet? Ticona is more than doubling its capacity for liquid crystal polymer (LCP) and will begin to take orders over its website alliance mentioned above as Omnexus.Additionally, Fortron Industries, a jv between Ticona and Kureha Chemical Industries of Japan , will increase PPS capacity to 16 million pounds per year. Rhodia SA will distribute its Technyl brand nylon 6 and 6/6 resins via GEPolymerland. France-based Rhodia is the world's third-largest nylon producer and TechnylStar nylon is a unique, semi-crystalline , non-linear polymer.Kama Corp., Hazelton, PA, USA, boasts nine plants producing extruded sheet and film of OPS, HIPS , PET , HDPE . Roechling adds 28,000 square feet to existing facility in Gastonia, NC USA.

NEW PRODUCT NEWS: Annouced at NPE 2000 by GE is a new resin , temporarily called **W-4** , being shown as a .030 x 48" wide film run on a Xenoy® substrate. It eliminates the need for a gloss color additive and we saw an automotive hood with molded in gloss color that was auto industry exterior compliant. This product soon to be available in free-standing film form holds promise for expanding PC film applications for new markets. New Cyrolite Med from Cyro Industries is said to be the first alcohol and lipid-resistant acrylic multipolymer for medical devices.
Reseachers at Northwestern University have designed ultrathin molecules , called "dendron rodcoil" molecules which by adding 1% by weight to styrene causes a dramatic physical transformation – the formation of self-reinforcing internal structures – to radically produce tougher polymers such as but not limited to styrene , thus altering the price-performance ratio dramtically.
BP Amoco is going forward with Thornel oxidized pitch-based continuous fibers and ThermalGraph rigid panels – all thermally conductive plastics as a substitute for metals.
Lubriloy DS is a new PC that is both conductive and internally lubricated without the use of PTFE and thus safe to use in data storage , business machines and electronics – this from LNP in Pa.
Acrylic sheet with formable masking film from Ineos Acrylics (formerly ICI) and a new improved paper masking for FF sheet from CYRO are a few new innovations for time-tested acrylic sheet products.
From 3M new Scotchweld DP 8005 bonds PP and other polyolefins without the prior use of surface treatments such as priming, flame treatment or corona treatment.

PERSONNEL NEWS: Greg Adams of GE to lead Cadillac Plastic Integration and will report to Gary Rogers, CEO of GE Plastics . Will he also perform the same role at Commercial Plastics?
Very likely the two newest acquisitions of GE will be integrated – should make life interesting for those formerly used to being competitors. Curbell announces new hires and promotions for Robert Barzycki , James Bush , Karen Klaich , Barbara Edman , David Michel – Tom Sullivan moves to new location. At HPG , John Ploskonka rejoins company as General Manager Sheet Products Group , replacing Ed Chamberlain who will oversee special projects. Atofina , the newly renamed chemicals division of TotalFinaElf , appoints Francois Cornelis as President – remember Rohm and Haas and Elf Atochem?
The new trade association for plastic fabricators , IPFA , announces that Chris Elfering of Piper Plastics has been named their first President.

INDUSTRY INTERVIEWS: P. Robert Dupont , CEO , Thermoplastic Processes(TPI) , rejoined his company earlier this year after a 15 year absence during which time he founded Sani-Tech .
As head of this major extruder of custom and captive shapes , Bob brings a record of product and market innovations back to where he started in this industry. We interviewed him by phone from his offices in Stirling , NJ

GLOBAL PLASTICS LETTER (GPL): How old is TPI and what size company are you? *BOB DUPONT(BD): In 1999 we celebrated our 50th anniversary and now, in our 51st year,our sales are $18 million a year and we employ over 100 people.*
GPL: What was the first product extruded?
BD: Believe it or not, we started with a toy reindeer and sleigh rein of 1/32 diameter PVC rod – followed by the "Hula Hoop" which for 6 months we ran 24 hours a day and was our cash cow and took us from $80,000 to $500,000 per year in sales.
GPL: What is your market share among thermoplastic extruders?
BD: In our proprietary products , acrylic , PC , CAB , PVC , TPE ,etc we estimate our share at 60% - incidentally the PVC mix that we run is 40% flexible and 60% rigid.
GPL: How many distributors do you have? How much is sold via distribution versus direct?

BD: We have several types of distributors and in order of sales are Plastic, Industrial Pipe, Electrical, Scientific, and Industrial Rubber . We sell 95% through distribution and 5% direct, where we have to compete with other extruders

GPL: Do you export or import more? Which products?

BD: We export much more than import but it is only 10% of our volume and it's across the board by product lines with the largest amount (60%) going to the E-7 countries

GPL: Where do you see the biggest growth for your product line ? Which will be the fastest growing product(s)?

BD: It will be in profitable, not commodity products such as our SUPERHINGE, replacing the metal piano hinge - it is an acrylic/PU co- extrusion which is corrosion resistant, flexible and a replacement for metal which is what we do best.. We are not in the "plastics" business per se, but are in the non metallics contact surface business.We have a new product –still top secret – uses PC,

which should double the size of TPI in the next 2 years . On top of that we will be introducing a F4000 and F8000 flexible pipe that becomes its own elbow and fittings!

GPL: How will your business change (if at all) with the advent of e-commerce?

BD: In my opinion e-commerce is a form of advertising and it's too early to tell how it will influence our business – the return is questionable – we are not jumping on the bandwagon but are on the wagon instead.

GPL: Do you see existing distributors of your products changing their model to do business on the internet?

BD: I see them adding the model , not changing it – it's another channel which completes the marketing circle . Distributors are entrepreneurs and should continue to function that way.

GPL: What will be the biggest changes in the plastics model for manufacturers in the 21st century?

BD: We are a processor of non-metallic products – when the Dow's and DuPont's bring us new polymers we make them useable and find markets for them. New hybrid materials are coming at us at a faster pace than ever and processors that absorb them will seize the opportunity.

GPL: What advice would you give a plastics marketing person starting out in today's business?

BD: Welcome aboard! Know why you're aboard and know the value of the product you're marketing. You have to offer a return on investment to the user. Be sure to do your reconnaissance and know your advantages and what you're competing against.

GPL: What are some of the changes you have seen in the shapes industry during the 15 years you were away?

BD: Extrusion used to be an art – now machinery mfrs have created a turnkey extrusion business,thus more competition –so our strategy of innovating is more important than ever –taking extrusion from an art tand thus have created more competition for us and thus our strategy of innovating is even more important than ever – taking extrusion from an art to a science.

GPL: What do you consider your greatest accomplishment?

BD: Teach young people how to succeed – what the ingredients are- then give them a compass!