Mel Ettenson's GLOBAL PLASTICS LETTER
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Dear Colleague:

As we mark our first anniversary of publishing the newsletter for the third millenium, and begin the second year of publication, it is well to note our first pricing forecasts. In the November 1999 inaugural issue we stated "…oil will remain volatile – above $21 a barrel …gasoline will rise in price… nylon and acetal prices will continue to increase". Unfortunately, this has come to pass and the upward spiral continues.

What we didn't forecast one year ago was the impact of the internet and e-commerce on the SIC 5162 industry – in the ensuing months, this subject dominated our comments and the thinking of all in our industry. Speaking of our industry – some facts from SPI: (see their website: www.plasticsindustry.org.)

The U.S. Plastics Industry: Strong and Growing

- 15 million jobs – up 25% since 1994
- $304 billion in shipments – up 35%
- 23,000 facilities
- 15% of jobs due to exports
- $5.2 billion annual trade surplus

The Power of Plastics:

- When upstream, supplier industries are included, the impact of the U.S. plastics industry grows to 2.4 million jobs and $393 billion in shipments.
- Plastics industry employment has grown steadily since 1974, increasing at a 2.7 % rate, while overall manufacturing employment decreased by only 0.1%.
- Since 1991, U.S. plastics industry shipments have grown 50%.
- Plastics manufacturing is an increasingly global industry, with plastics consumption growing at 5.6% annually from 1989-1999.

Outlook for 2001? Higher energy prices will siphon off some strength in '01, dampen growth and nudge inflation higher – but overall a good year.

TRENDS: Much has been written recently about the GE acquisitions of Honeywell, Cadillac Plastic, Commercial Plastics (yet to close), and NIM (see below). The strategic implications of these moves are just now coming into focus – herewith; GE becomes a major producer of nylon resin 12% world market share) - (DuPont is leader) and the largest in nylon film – with their acquisition of Honeywell, which in itself was formerly Allied Chemical. The addition of NIM, which will operate as a wholly owned subsidiary of GE, adds more film capacity with its 2 extrusion lines. It will continue to market to independent distributors and through manufacturers reps, according to a GE spokesman. More on GE's strategy in an upcoming interview with GE executives.

In addition, with the acquisition of Honeywell, added to the Cadillac and Polymerland units, GE's e-commerce initiatives take quantum leaps. As an example, Honeywell already is operating an online service, based on Microsoft's .Net technology – automating the $240 billion/year business of MRO at manufacturing plants around the globe.

Factory managers can shop for goods and services offered by Honeywell/GE using www.MyPlant.com adding thousands of products (spelled PLASTICS) from hundreds of suppliers so customers can comparison shop and arrange plant repair and purchasing in one place. GE companies can plug their catalogs and e-commerce systems into. Net and provide customers with instant updates of prices and inventories and all the sites will interact automatically with each other so the customer feels like it's one site – and GE will charge suppliers to list their products on MyPlant.com and will take a fee for every transaction through the service.

Talk about Trends – this one is flying at hurricane speed, pervading all our businesses and changing rules daily. The real power of e-commerce is in allowing customers to buy products and services they could not find without the internet – choice beats price!

Up and running with Plastic Shapes for sale on line are: www.plasticsonline.cc, www.worldwideplastics.com, www.plasticlink.com, www.plasticsPDS.com, and active sites are up and running from over 200 manufacturers and distributors – some of whom may be actively taking orders for materials soon!

PRICING FORECASTS: At this writing, most resins are undergoing price increases, on the order of high single digit or low double digit amounts – examples of increases going into effect are: acetal copolymer up .08/lb and nylon up .12/lb (announced by BASF, DuPont and Ticona); PC and ABS up .08/lb and .05/lb respectively (announced by Dow). Most of these increases are to take effect from Nov. 15 – Dec.1 2000. On the global front, engineering thermoplastics (ETP) demand in China is increasing 15-20% per year, especially for nylon and PC, (remember GE is now in both) and this is seriously affecting world wide prices based on supply-demand imbalance.

Some notable exceptions to the price run-up are PE and PVC which are stable to lower – although continuing increases in oil prices could change that picture. PP continues to grow and prices are stable for the most part – but probably not beyond 4Q 2000. With Mitsui Chemicals cutting production of PE and Toyo Styrene doing the same with PS, look for more attempts to lower supply even in lower demand markets, as a way to prevent prices from falling, for those few commodity resins that are experiencing this.

Overall, inflation in our industry continues unabated!

MERGERS, ACQUISITIONS, ALLIANCES, AND EXPANSIONS: GE buys NIM (PC sheet and film); Honeywell (Allied Chemical plastics), puts them in nylon 6 resin and film business as well as PET for film and packaging; Cadillac and Commercial Plastics units will form their Shapes Distribution Business which will report separately from GE Polymerland to Gary Rogers, Pres. GE Plastics.

Sofanou Technology, Troy, Mich. buys the sleeving business of Markel Corp. of Norristown, Pa.

Degussa-Huls stockholders approved the merger of Veba and Viag – 14 billion euros are annual sales. Ciba sells its interest in Hexcel (composites) to an investor group. LG Chemicals, Korea, buys Hyundai PVC business. GE Plastics opens its Colorxpress center at Selkirk, N.Y. – allows custom color and effect matches within 48 hours, allowing quick production of resins and possibly film and sheet to follow- a $10 million investment that currently has 14,000 color chips. Matching takes place on line at www.gecolorxpress.com.

NEW PRODUCTS: Vespel ® TP parts introduced by DuPont – it is a melt processable polyimide supplied by Mitsui Chemicals of Tokyo which sell its products as Aurum® and has jointly developed this polyimide breakthrough with DuPont. Parts produced from these resins demonstrate improved temperature, chemical and wear resistance. This latest Vespel product joins the S, CP, CR and ASB family of products.

LNP and Vetrotex America announce the availability of 75% glass filled PP pellets– the highest glass content to date. Eastman announces biodegradable golf tees from their Eastar Bio® copolyester.

GE announces SOLLX film, which imparts color to thermoplastic parts to approximate the effect of paint – being introduced into the automotive market first as an alternative to paint.

Devcon introduces Plastic Welder II methacrylate adhesive for hard-to-bond plastics, composites and dissimilar substrates.

DuPont announces overlay of Teflon® to protect graphics – made by Avery Dennison as DOL 5000. – electrostatically printed on cast vinyl film and overlaminated.

Thermoplastic polyolefins (TPO) may replace PVC in auto interior applications – Geon Engineered Films is one of those working on this major change in plastics consumption.

Wheels of PEEK propel industrial laundry automated system rails; used in the UK and pioneered by Victrex.

Eastman introduces Embrace copolyester shrink film for the packaging industry.

Polyarylamide, an aromatic nylon reintroduced by Solvay, under license from Mitsubishi and called Ixef, with low degree of crystallinity comparable to light metals and their alloys which are target applications.

Clear credit cards of PVC being offered by some major financial institutions and made by Colorado Plasticard.

DISTRIBUTOR/MANUFACTURER BRIEFS: CYRO Industries and Piedmont Plastics enter an e-commerce relationship with WorldWidePlastics.com. DSM to become a specialty company concentrating on (bio) chemical specialties – and still offering DSM EPP for sale – posts record 3Q profits. Toray of Japan will make capacitor film from PPS to replace PC film for use as a dielectric film, just exited by Bayer. DuPont and Bayer announce a jv to produce PBT in Europe.

Ticona and DSM announced just such a move in May of this year – GE and Mitsubishi looking at doing this in Japan. Curbell, through its Niagara Polymer Products unit offers coated fabrics, tapes and belts – has produced brochure with samples. DSM EPP offers new database to help select stock shapes – the CD-ROM can be ordered on line from them at www.dsmepp.com.

DISTRIBUTOR/MANUFACTURER BRIEFS (CONT'D) Plaskolite adds Optix Frost to its line of acrylic sheet. It contains a frosting additive which imparts texture on both sides and yet can still be thermoformed or line bent. DSM and Shell develop butadiene based caprolactum for nylon 6. The abundance of butadiene versus conventional cyclohexane or phenol based caprolactum hold promise for lower cost nylon 6. Repsol and Borealis have formed a jv to produce polyolein in Spain and becomes one of Europe's largest producers.

Adam Spence Corp. of New Jersey celebrates 40th anniversary and becomes one of largest medical tubing manufacturers with sales of about $20 million. Ticona is adding about 50 million pounds to its acetal resin capacity in Germany – will be on stream by 2002, giving it an annual capacity of 220 million pounds. GE's upcoming buyout of Honeywell should result in more nylon formulations, but calls into question whether nylon (Capran) film will fit into GE's current film plans for Lexan and other proprietary films – could be sold to DuPont.

Formosa Plastics wants to build PVC plant in China – a 300,000 mt plant is proposed, to meet the surge in demand for PVC in China due to infrastructure improvements taking place there. Speculation in Asia is calling for a merger of Mitsui Chemicals and Sumitomo Chemical – making this the sixth largest chemical firm in the world and possibly acting as a counterbalance to all the actvity taking place in Asia by European and North American companies.

Saint-Gobain Performance Plastics open company's largest manufacturing plant in California – a 182,000 square foot facility to house Engineered Components, High Performance Seals and Machined and Molded Components units. A.L. Hyde looking to replace Nylacast Ltd as their source of cast nylon product – since the announcement of their dissolution of their jv was announced, their was talk of replacing it with another manufacurer from Europe, possibly Licharz or Comco Germany?

DSM EPP still up for sale – prospects appear to be St. Gobain, Ensinger and some others off-shore.

Cadillac branches still being closed – over 13 so far and more to come – after the Commercial closing by GE, there are more redundancies expected to be cured – and on-line commerce goes into high gear with Cadillac and Commercial expected to provide cut-to-size and local deliveries – the business model that will be the great experiment in our industry. Stay tuned!

Piedmont Plastics now on the www.worldwideplastics.com website, with Cyro, PolyHi and TPI also listed as participating manufacturers. How the fulfillment works is still in question and other distributors are purported to be lining up. The e-commerce experiments go on.

The ranking of film and sheet manufacturers of North America is out – here are some of the top that relate to our industry: DuPont (#1), Spartech (#11), Inteplast Group Ltd (#14), GE Plastics Structured Sheet (#19), Klockner-Pentaplast (#21), Atofina (#22), Nan Ya (#24), Primex (#25), Cyro (#30), Inoes (#32), Aristech (#45) and Plaskolite (#46, at $124 million per year).

INDUSTRY INTERVIEWS: … will be resumed next month with answers to questions posed to GE executives – based on all the M&A activities being pursued by one of our industry's leaders.

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