



MPD NEWSLETTER

DECEMBER 2014

LETTER FROM THE CHAIR



Hi Fellow MPD Members:

Although this might seem like a slow time, the Board of Directors has been busy making preparations for our recent MiniTec, ANTEC, and other technical conferences that are coming up. The incredibly energetic Len Czuba recently organized a MiniTec with the Philadelphia section. The conference was a one-day event entitled "Technology Advances in Plastics Materials and Processing for Medical Plastics" featuring 14 speakers! The event was a great success with attendees wanting to make sure that MPD continues their support of MiniTec conferences. Ed Fewkes and Pierre Moulinie have been developing the ANTEC 2015 program for the Medical Plastics Division. The extended deadline turned in so many high quality submissions that we are requesting three medical plastics sessions at ANTEC. This will be another great program year and I look forward to seeing you in Orlando. Keep in mind that ANTEC 2015 is being held in conjunction with NPE in Orlando, FL on 23-25 MAR 2015, which makes ANTEC much earlier than most years past. Don't let the housing and registration deadlines pass you by. Early registration is open now

We have been working on written bylaws for the Medical Plastics Division, primarily to define the positions and responsibilities of the Board members. Expect to hear from us soon as we hope to have the MPD membership vote on adoption of these bylaws this winter.

Speaking of the Board, elections of new directors to the MPD Board will occur in January 2015. There are 5 open positions on the board and we hope that you will

consider nominating yourself or talk about the opportunity to your colleagues. More information on the election process is included in this edition. If you have any interest in running for one of five opening positions, please contact me or any other MPD board member for information. This whole process needs to happen during that awkward time between Thanksgiving and New Year's so start thinking about it now. We would love to have you join us.

Norris M. Tollefson

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FEATURE TECHNOLOGY

Transparent Laser Welding in Medical Devices

By Nitin Sood

The global medical device market is one of the fastest growing segments of the global economy. New innovations in medical devices are driving up the usage of medical plastics, which is expected to exceed 10 billion pounds in 2015¹, and driving the need and development of low cost, high throughput, high quality processing techniques. One of the engineering hurdles being faced is how to join complex plastic forms that are not suited for injection molding. One of the newer methods for joining these polymers is Transparent Laser Welding (TLPW). Laser plastic welding produces very clean welds with minimal to no flash and eliminates dust-like particulates or scaling. The clean nature of the technology allows it to easily be integrated into cleanrooms up to ISO Class 5, a factor that certainly sets laser polymer welding apart from other welding technologies. Applications such as micro-fluidic devices, catheters, and fluid-control devices benefit from the precision, cleanliness, and surgical nature of laser plastic welding.

TLPW utilizes high wavelength fiber lasers operating at wavelengths around 2,000 nanometers (2 microns). The higher wavelength laser interacts differently with the plastic than the typical 808nm or 980nm infrared lasers used in through-transmission welding. At 2,000nm, some of the laser energy is still transmitted or passed through a clear thermoplastic allowing for some volumetric absorption. Enough volumetric absorption occurs to heat and plasticize the polymer. In the case of TLPW there are four surfaces where absorption will increase: the upper surface, the two surfaces at the joint interface, and the lower surface. Because the interface of the joint is comprised of two

surfaces, the majority of the absorption occurs within 2 micron of the surface. Here, a clear-to-clear welding takes place making it a good solution for joining clear thermoplastics without absorber additives. TLPW has potential uses in the medical device industry where many devices are not only clear/translucent, but also are required to meet strict FDA guidelines. Adhesives and solvents are the current method of choice for bonding clear thermoplastics, but these are often known to cause contamination or fail regulatory testing. TLPW is clean, precise and requires no additional chemicals or materials.

TLPW may find use in the search to find alternatives to PVC, a major trend in the industry. Many manufacturers are looking to replace PVC with thermoplastic elastomers that exhibit similar characteristics to PVC but with less environmental impact and potential toxic exposure than PVC, which contains DEHP, a potential carcinogen. Thermoplastic elastomers such as TPU and TPE are excellent substitutes for PVC and contain no DEHP. TPU and TPE are well suited to applications such as catheters or medical films that require flexibility and optical clarity. Not only are TPEs weldable with TLPW, but the process handles them very effectively. Strong bonds can be created quickly and with very little energy input in most thermoplastics. Simple material tests under a 2µm laser have shown that polymer membranes and white polymer-based fabrics are weldable as well. The welds are clean, strong, and show minimal distortion or weld flash, and in many cases the welds are unnoticeable unless viewed under magnification.

1. Global Industry Analysts, Inc. (2010, July 6). *Global Medical Plastics Market to Exceed 10 Billion Pounds by 2015, According to New Report by Global Industry Analysts, Inc.* Retrieved July 18, 2012, from PR Web; 2. <http://www.lpkfusa.com/lq/transparent-laser-welding.htm>

PATSY BEAL RECOGNIZED

On Saturday evening, Nov. 15th, a small gathering of SPE dignitaries and close friends of Glenn and Patsy Beall gathered at a celebration at which Patsy Beall was presented with a Honorary SPE Membership. Managing Director Russell Broome presented the membership certificate and welcomed Patsy into the ranks of SPE members.

This distinction is seldom granted and requires the approval of the past presidents of the society. But Patsy, because of her long years of service to SPE and the plastics industry, received overwhelming support in this nomination. The banquet was sponsored by the Product Design and Development Division, the Rotational Molding Division, the Mold Making and Mold Design Division, and the Chicago and Milwaukee Sections of the society.

Join us in congratulating Patsy on this great honor!



FEATURE EVENT:

2015 SPE International Polyolefins Conference

The 2015 SPE International Polyolefins Conference will be held on Feb 22 – 25 in Houston, Texas. The theme for the conference will be “Four Decades of Advancing Polyolefins Technology.” For the second year in a row, the Medical Plastics Division will be participating. There are a couple of slots available if you wish to present at the conference. The conference is a great opportunity to network and learn new things. In the 2014 conference, there were over 650 attendees, 64 exhibitor booths, 2 networking socials, 84 technical papers, a very successful technical tutorial (125+ people), and a great Student Poster contest. For more information, visit website <http://polyolefinconfpapers.org> or contact Ben Poon (benjamin_poon@baxter.com)

EVENTS CALENDAR (2015)

MPD Election Bios Due	Jan 7
Thermoset Conference	Feb 3-5
Polyolefins Conference	Feb 22-25
ANTEC 2015	Mar 23-25
The Plastics Race	Mar 24

ANTEC FOCUS: THE PLASTICS RACE

At this year's ANTEC, you will likely come across groups of students in yellow shirts rushing past you looking quite determined. No, they aren't being rude, they are competing! For the second year, ANTEC will feature the Plastics Race, a student competition where student groups will follow a trail of clues that will have them weaving among the aisles of the exhibit hall solving problems and gathering information. This is a great way for the newest members of SPE to get exposure to our industry and to give our exhibitors an opportunity to interact with the students. This Race will take place on Tuesday, March 24th. If you are a student member, you can get more information and register at www.4SPE.org/ANTEC/TPR. If you would like to explore sponsorship opportunities and draw some attention to your booth, contact Sarah Sullinger at ssullinger@4spe.org.



MINITEC WRAP-UP

Thanks to the efforts of Len Czuba and the team at the Philadelphia section, the "Technology Advances in Plastics Materials and Processing for Medical Plastics" MiniTec was a great success. Below are a few snapshots from the event. The feedback from the attendees was positive with an overwhelming number of requests to do more local MiniTecs. Keep an eye on the Newsletter for our next MiniTec and if you are interested in hosting one in your city, contact the communications team at jhfreedm@yahoo.com.



BOARD OF DIRECTORS ELECTIONS FOR THE MEDICAL PLASTICS DIVISION

Nominations for the MPD Board of Directors are now open.

The Board of Directors is the governing body of the Medical Plastics Division. Its responsibilities include selection of MPD officers, establishing division rules and operating procedures, appointing committee chairs, establishing a budget, and fundraising, as well as authorizing, negotiating, and planning technical conferences.

The Board of Directors is made up of approximately 20 elected members that generally serve three year terms in a staggered fashion so that each year we elect five new board members. This year, the election of the Councilor, our MPD representative to the SPE, will also take place. The Councilor serves a three year term.

If you are interested in participating in the Medical Plastics division as a member of the Board of Directors, please submit a short biography and a recent picture before 07 JAN 2015 to Norris M. Tollefson (Norris.tollefson@alcon.com) or Mark Bonifacio (mark@bonifacioconsulting.com).

REQUIREMENTS AND RESPONSIBILITIES FOR BOARD MEMBERS

- ▶ Candidates for the SPE Medical Plastics Division Board of Directors must be active members of the Society of Plastics Engineers and of the Medical Plastics Division
- ▶ Members of the Board should be involved in or have interest in some aspect of the Medical Plastics Business or a related academic field.
- ▶ Board members are expected to participate in bimonthly 1-hour teleconference meetings and annual in-person Board of Directors and Business meetings at SPE's Annual Technical Conference (ANTEC).
- ▶ Willing Board members will assume specific roles in leadership positions, such as Secretary, Newsletter, Web-Site, Social Activities, Technical Program Chair, Membership, Student Activities, Treasurer and SPE-Council Representative.
- ▶ Board members are expected to participate in committees in some capacity to support activities such as Technical Conferences, Membership Group Activities, Financial oversight, BOD nominations, etc.
- ▶ We encourage an active membership so any one individual doesn't carry too much of a load.

COMMUNICATION TEAM NOTES...

I hope you enjoyed this December issue of the MPD Newsletter. Since our last newsletter, the communications team has added Nitin Sood and Lorie Lodico to its ranks. With this added manpower, we are excited about our ability to open our forums for communication to include LinkedIn and a new MPD website. Our goal as a communications team is to provide information about upcoming events, SPE news, and new technologies and trends in medical plastics that add value to your day. We have big plans to expand our content and we look forward to having you join us on the Journey.

MPD Communications Team

BOARD OF DIRECTORS

The volunteers that make up the Board of Directors are listed below, along with their contact information. If you have any questions, please reach out to anyone on the board.

Name	Position	email
Norris M. Tollefson	Chair	norris.tollefson@alcon.com
Mark Bonifacio	Past Chair	mark@bonifacioconsulting.com
James Oberhauser		james.oberhauser@av.abbott.com
Ben Poon	Secretary	benjamin.poon@baxter.com
Austin Coffey		austin.coffey@gmail.com
Pierre Mouline		pierre.moulinie@bayer.com
John Thomas	Finance	johnt@bonifacioconsulting.com
Lorie Lodico		lorie.lodico@gmail.com
Glenn L. Beall	Historian	glennbeallplas@msn.com
Ali Ashter	Treasurer	ashter2000@gmail.com
Len Czuba	Finance	lczuba@aol.com
Margie Hanna	Councilor	m_hanna@yahoo.com
Steve McCarthy	Finance	stephen_mccarthy@uml.edu
Michael Wallick	Awards	mwallick@invivio.com
Jordon Freedman	Newletter	jordan.freedman@biomet.com
Maureen Reitman		mreitman@exponent.com
Ed Fewkes	TCP ANTEC	fewkesej@corning.com
Harrison Yu		harrisonyu@comcast.net
Kathy Schacht	SPE Liaison	kschacht@4spe.org
James Madenjian		jmplastics@aol.com
Jodie Laughlin		jodielaughlin@aol.com
Ken Breeding		kebreed@eastman.com
Vipul Dave		vdave1@its.jnj.com
Nitin Soon		Sood_nitink@yahoo.com
Jim Mason		jim.mason@mmd-llc.com
Bob Herman		quarkreh1@gmail.com
Ajay Padsalgikar		apadsalgikar@sjm.com
Erica Tseng		tzuchia.tseng@gamil.com