



Thermoplastic Elastomers

Special Interest Group

December 2016

DEAR FELLOW MEMBERS OF THE TPE INDUSTRY

Greetings! With the World Series and presidential election behind us, I now can focus myself to thoughts on the TPE SIG business. It was an exciting year of baseball for this lifelong Cleveland Indians fan, culminating in one of the most exciting series in recent memory. Congratulations to the Chicago Cubs and their fans....we felt your pain. Now you can feel ours. As for the election, I reserve my political comments only to say it is great to be able to turn on the TV and not see an ad from either candidate. Now let's make America (and the world) great again by using more TPE.

I am delighted to report the TPE TOPCON held in Akron was a technical and commercial success for the SIG and Akron Section. Special thanks go to the committee consisting of our folks and the SPE Akron Section. While the final financial results are not in at this writing, we expect to have earned several thousand dollars which will be directed to education via the Plastivan program and scholarships to deserving undergraduate and graduate students with interest in thermoplastic elastomers. The TPE tutorial was well attended and well received. We will most likely continue this concept along with another TPE TOPCON in 2018. Location and dates will be announced in the coming year.

Meanwhile, our scholarship committee identified several deserving students and will be providing \$6000 in six separate scholarships in the coming months, through the SPE Foundation. The committee did yeoman work to cull through and evaluate the numerous applicants from universities throughout the country.

Lastly, this gray(ing) beard is making an appeal to younger members of our community to consider becoming an active member of the board of directors. The BOD is an active group which makes TPE TOPCON, ANTEC participation, education, scholarship, and general promotion of TPEs a top priority. It is a great way to get to know others in the community and to make a meaningful contribution. To learn more about this service, please contact anyone on the BOD or the SPE directly.

Wishing all had a great Thanksgiving and wishing you all a Merry Christmas/Happy Hanukah/pleasant secular winter holiday.

Thomas E. Bell
TPE SIG Chair, 2016-2017



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TPE SIG BOD Minutes Summary: November 11, 2016

Proceedings:

Tom Bell called the meeting to order at 9:02 AM EST and initiated recording.

1. Mukul Kaushik gave an update regarding **ANTEC 2017**.
 - a. A call for papers (citing the 13th January deadline) was issued September 15th and direct e-mail solicitations were made
 - b. Two responses thus far include Nick Deluca(sp?) from Arkema for a tutorial and Krishna Venkataswamy from PolyOne for a keynote; Krishna needs a letter of solicitation for PolyOne's records; Mukul will take care of that
 - c. A TPC conference call is scheduled for today (11 November) at 2:00 and next steps will be known after that
 - d. "commercial technical" papers are now acceptable; these can be in PowerPoint format but are still subject to review
2. Bill Blasius gave a final update from the **TOPCON in the body of this newsletter**
3. Ed Tam provided the update from the **Scholarship Committee**.
 - a. Of 13 applications received 2 graduate students and 4 undergraduate students were very strong and the committee recommended that we grant each a \$1,000. Award
 - b. Detailed report is in body of this newsletter
4. Richard Faulkner requested assistance with the **Website Committee**.
 - a. Brad Guilani agreed
 - b. Kathy Schacht pointed out that Pedro at SPE Headquarters is the guy to go to for Website updates
5. Bob Abell gave an update regarding the **New Board Member Matters**.
 - a. Tom Bell requested a membership update at the next BOD meeting
 - b. A BOD candidate from A. Schulman could not get company backing
 - c. Bob will follow up with Ramen Patel and Rudy School

Dick Cameron commented later that we should consider recruiting younger people, millennials specifically, to help start grooming the next wave of SPE members

6. The next TPE SIG BOD meeting will be a teleconference Friday 13 January 2017 at 10:00AM EST.



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TPE TopCon 2016 Overview



Over 170 people gathered in Akron, OH to learn, share and discuss all things melt-able and rubbery at the 12th biennial Thermoplastic Elastomers Topical Conference. TPE TopCon is a joint production of the Society of Plastics Engineer's Akron Section and the Thermoplastic Elastomers Special Interest Group with the local section handling the logistics and fund raising functions while

the SIG took care of organizing the technical program.

This year's version featured a half day TPE Primer on registration day. The grouped topics covered included Commodity TPEs (Polyolefins: Jeff Munro, Styrenics: Mark Berard, PVC Alloys: Bill Blasius), Engineering TPEs (Thermoplastic Polyurethane: Mark Kujawski, Polyesters: Chris Schroder, Polyamides: Bill Blasius) and Specialty TPEs (Interpenetrating Networks, Shape Memory: Kevin Cavicchi). This session was sponsored by TPE Magazine and ALLOD Werkstoff GmbH & Co KG who provided a copy of the book "TPE PRIMER: Fundamentals & Injection Molding" by Thomas Dolansky, Manuela Gehringer and Harald Neumeier to each of the 40 Primer attendees.



Stephane Morin presenting the Tuesday evening TPE Primer

The conference officially kicked off with Bob Eller addressing market trends and global competition. The session on materials and characteristics covering antimicrobial selection by Jeff Trogolo from Sciecent LLC; melt processable soft SEBS by Parashar Dave of TSRC-Dexco; bonding solutions for TPE tubing by Kevin Cai from Teknor Apex; controlling the morphologies of charged elastomers by Richard Spontak of North Carolina State; effects of strain on TPUs by Alex Sokolowski of BASF.

Deb Douglas of the Douglas Group provided the lunch keynote on Wednesday and spoke to us about merger and acquisition activity in the plastics industry.

Wednesday's afternoon's first session was focused on bio-sourced TPEs and featured Marc Hillmyer of U Minnesota speaking about aliphatic polyesters, Chuanbing Tang of U South Carolina covering elastomers containing plant oils and lignin, Eric Cochran of Iowa State addressing elastomers from multifunctional natural materials.



The plastics industry needs more young people to be part of the plastics industry labor market!

Bring the PlastiVan™ program to your area.

The average age of the people working in the plastics industry is 56 years. This obviously means that there will be many who will be retiring in the coming years with not enough younger people to replace them. The students coming out of our high schools at this time know very little if anything about the career opportunities in the plastics industry. Actually many come out of high school with a negative opinion of plastics and manufacturing in general.

There is a way you and your company or organization can change this. Help sponsor a PlastiVan™ visit to your local high school or junior high or middle school. This mobile chemistry program will emphasize the positive aspect of plastics and also introduce the young students to the career possibilities they can look forward to. More information on the PlastiVan™ program is available by clicking the link below.

<http://www.4spe.org/Leadership/Content.aspx?ItemNumber=6500>



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TPE TopCon 2016 Overview cont'd

Steve Bolton of Trucost Plc finished up the section with a talk discussing whether bioplastics can be part of the transition to a more sustainable global economy. The next afternoon session covered 3D printing elastomers. Sarah Goehrke of 3DPrint.com provided insight into 16 of the top 3D stories of 2016 (so far); Jake McDonough talked about Fenner's development of elastomeric filaments for fused deposition molding and Edmond Richer of SMU explained the invention of a pellet fed 3D printer used to facilitate the production of a soft bodied robot.

Thursday morning's first set of presentations on scale-up and processing was led off by John Berg of MGS Manufacturing sharing experiences in multi-shot injection molding with TPEs. Paul Andersen of Coperion spoke about the hazards of scaling up twin screw compounding and Keith Luker of Randcastle explained the dynamics of 3 dimensional orderly mixing using uniquely designed single screw extruders. During the morning break, posters were presented by students from U Akron, Kent State with two industrial posters from Total Cray Valley and TA Instruments. Nina Visconti of Quantisweb Technologies continued with the morning's theme with a talk on next generation optimization software for variable rich process industries like extrusion compounding. Avraam Isayev, recently retired from U Akron, came back to town to talk about the use of ultrasonics to produce high quality TPEs from waste EPDM. Matthew Feidler of re:3D, Inc provided Thursday's lunch keynote. Matthew talked about his journey from working at NASA to becoming an entrepreneur and the values that drive him to harness 3D printing as a means to reincorporate recycled plastics into customized parts. He also brought along the smallest of his Gigabot 3D printers and ran off parts in the exhibition hall.

Thursday afternoon's session was focused on the emerging uses of wearable and flexible technology. Steve Cranney of Kraiburg talked about the use of TPEs in consumer electronics. Hossam Metwally from ANSYS presented a means to model the functionality of wearable drug delivery systems. Eric Baer from Case Western explained some of the work going on in his labs on coextruded multilayer shape memory systems. DSM's Chris Schroder wrapped up the session and the conference with a talk on the use of engineering elastomers in wearable technologies.

We would like to thank all the Primer and conference speakers and moderators (Jeff Munro, Brad Guilani, Reza Sadeghi and Tom Bell) for making this one of the technically broad and deep TPE conferences. As always the Akron based team did a fantastic job of organizing and bringing in sponsors and exhibitors. A special, personal note of thanks needs to go out to Bob Wegelin who while having very limited mobility needed to make sure that the rooms and AV equipment were all set up to his standards.

Finally, we need to thank our sponsors: Kuraray America, Struktol Company of America, ExxonMobil, Kraiburg TPE Corp, A. Schulman and Chemours as well as the exhibitors: A. Schulman, Akron Rubber Development Laboratory, American Wood Fibers, Chemours, Coperion, Japan Steel Works America, Kraiburg TPE Corp, Kuraray America, Leistritz, Struktol Company of America, TA Instruments and Thermo Fisher Scientific.



Technical Paper Co-Chairs: Mark Berard and Bill Blasius

We're looking forward to seeing you all and more for the 13th TPE TopCon in September 2018 in Akron, OH.

Bill Blasius
TOPCON Committee Co-Chair



SCHOLARSHIPS

The SPE TPE SIG is proud to announce its 2016-2017 graduate & undergraduate scholarship recipients.

UNDERGRADUATE STUDENTS



Emma Adams, a senior at Auburn University pursuing a dual degree in Chemical Engineering and Polymer & Fiber Engineering. Her undergraduate research is on Drug Delivery System; summer intern at PolyOne.

Troy Metz, a sophomore at Northwest State Community College in Archbold, Ohio. He worked at Strafford Plastics and Hoosier Pride Plastics; he is also recipient of US Army National defense Medal.



Vincent Chee, a senior at Rutgers University, scheduled to graduate in December 2016 with a B.S in Packaging Engineering. Co-Op at Mondelez and Batallure Beauty.

Macy Johns, a senior at University of Louisville, Chemical Engineering major. She is AIChE Student Chapter Chair. Co-Op at Sabic.



GRADUATE STUDENTS



Prasad Raut, a PhD. student at University of Akron, major in Polymer Engineering. He is currently a Research Assistant at the university. Raul has 2 publications and 6 oral /poster presentations, one of them received the best oral presentation at General Tire Industry Meeting.

Solouki Bonab Vahab, a PhD. student at Case Western University. He is currently a Teaching Assistant and studying Macromolecular Engineering. Vahut has 5 publications in the area of TPU.





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The TPE SIG is always looking for new Board members to help with planning and execution of various SIG activities such as ANTEC® sessions, the TPE TOPCON, scholarship programs, and PlastiVan™ visits. The TPE SIG Board meets face-to-face at ANTEC® every year, at the TPE TOPCON every other year, and by teleconference every six to eight weeks in between. As an incoming member, we ask for a three-year commitment from you and your employer. In return, we provide good networking opportunities and a word of appreciation for your company in one of our newsletters. If you are interested in joining us, please contact Tom Bell at +1 281-990-0909 or tomebell@aol.com.