



Thermoplastic Elastomers

Special Interest Group

January 2015

TPE SIG MEMBERS AND INDUSTRY COLLEAGUES

As we enter another new year we are approaching our next opportunity to meet and share new ideas and technology in the area of TPEs. ANTEC® 2015 is being held from March 23 – 25 at the Orange County Convention Center in Orlando, FL. As in 2012, the ANTEC™ Conference is being held concurrently with the NPE International Plastics Showcase, making this a great opportunity to see a wide range of technology and learn about the latest and greatest in the plastics industry. The TPE SIG will have one technical session at this year's ANTEC™ 2015 conference, currently scheduled to take place on Tuesday afternoon (check the ANTEC™ 2015 program guide when available for the latest dates and times for the TPE SIG session). I would like to acknowledge Stephane Morin, Technical Program Chair for the TPE SIG at ANTEC™ 2015, along with other members of the TPE SIG BOD who reviewed papers, for putting together a stimulating program for this year's session. They received a large number of submissions this year and had to make some difficult decisions on paper selections. Thanks to everyone who submitted for this year's session.

I would also like to thank Bill Blasius and Mark Berard, the Technical Program Chairs for the 2014 TOPCON® held in September, 2014 in Akron, OH. Bill and Mark put together an excellent program of speakers and events. I would also like to thank Viv Malpass, the Akron Section of SPE, and all the volunteers that worked to put together an excellent conference. The TOPCON® is our showcase event for the TPE SIG and continues to be a great opportunity to learn about new technology developments in the TPE industry and to meet with key members of the TPE community.

If you have any feedback on TOPCON® or ideas for further improvements to the event, please let Bill and Mark know. The TPE SIG BOD continues to look for ways to improve the event to make sure there is good attendance from academics and industry stakeholders from all along the TPE value chains, from raw materials suppliers to compounders to converters to end-users.

The TPE SIG also continues to help support education, with a focus on supporting those interested in the plastics industry in general, and in the TPE area specifically. We are handing out three scholarships and continue to support the PlastiVan school education events. If you have suggestions on other opportunities for the TPE SIG to support, let any BOD member know how we might be able to help.

As always, I look forward to our next upcoming event, the 2015 ANTEC® conference in March, and hope to see you there.

Sincerely,

Jeff Munro
TPE SIG Chair 2014-2015

Join Us!





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Support From Our Industry

Thanks to the **Teknor Apex** for allowing Edwin Tam to be an active member on the SPE TPE SIG Board

Teknor Apex is a diversified material science company with manufacturing operations in North America, Europe, and Asia. As a leading custom compounder, it serves as a single source of TPEs, flexible and rigid PVC, nylon, polyolefins, bioplastics, and colorants. Industries where Teknor Apex has special expertise include automotive/transportation, consumer products, electrical/electronics, industrial goods, medical devices, and packaging. Compounds meeting the same application requirements and quality standards are available anywhere in the world.

TPE compounds produced by Teknor Apex may be based on styrenic, thermoplastic vulcanizate, or olefinic (TPE-O and OBC) chemistries, as well as on specialty alloys. With the broadest portfolio of TPEs available from a single source, Teknor Apex takes a polymer-neutral approach to product selection. It can recommend a customized TPE compound that precisely suits the target application based on specific market requirements, or even present the customer with several viable options.

Teknor Apex has aligned its TPE brands with the major markets that it serves. These include Monprene[®], for consumer and industrial; Elexar[®] for electrical/electronics; Medalist[®] for medical devices; and Sarlink[®] for automotive/transportation. In each of these product families, compounds spanning the full range of TPE chemistries are available. In addition to custom formulations, each family also includes standard products built to specific end-use requirements and already compliant with applicable regulations or specifications.

TPE Session @ ANTEC[®] 2015



Papers currently planned for this session:

New Hydrogenated Styrenic Block Copolymers for Compounding Solutions
Y. Zhou, Kraton Polymers LLC, UNITED STATES

Highly Filled Thermoplastic Elastomer Compounds Made with Olefin Block Copolymers
S. Ultsch, The Dow Chemical Company, SWITZERLAND, L. Chen, The Dow Chemical Company, CHINA, J. Munro, L. Madenjian, The Dow Chemical Company, UNITED STATES

Injection Overmolding Performance of Thermoplastic Polyester Elastomers (TPC-ET)
M. Kaushik, Celanese, UNITED STATES

A New Styrenic Block Copolymer Designed for Polyolefin-like Processing for Compounding, Films and Fibers
M.T. Berard, TSRC Dexco, UNITED STATES, D. Handlin, Z. Cheng, TSRC, TAIWAN

Rubber De-vulcanization Using a Planetary Extruder
M.W. Batton, Entex GmbH, GERMANY

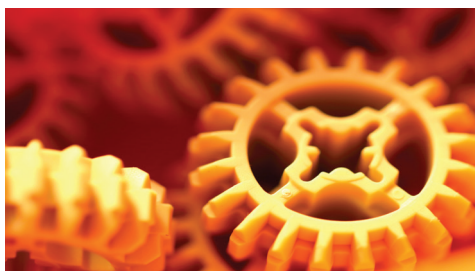
Polystyrene-b-Poly (Ethylene-co-Butylene)-b-Polystyrene/Zinc Oxide Block Copolymer Nanocomposites: Rheological and Dielectric Properties
E. Helal, N.R. Demarquette, E. David, École de Technologie Supérieure, CANADA, M. Fréchette, Institut de Recherche d'Hydro-Québec, CANADA

Chemical Resistant TPE Material with Adhesion to Engineering Plastics
F. Vetter, Kraiburg TPE GmbH & Co. KG, GERMANY, S. Kim, Kraiburg-TPE, UNITED STATES

Rheo-Kinetic Study of a Model TPU System for Reactive Extrusion
J.L. Gadley, J. Maia, Case Western Reserve University, UNITED STATES

Rheological Behavior and Structural Development of Thermoplastic Polyurethane Annealed at High Temperature
L. Gadley, J. Maia, R. Andrade, Case Western Reserve University, UNITED STATES

Two New Plastic Technology Programs at Schoolcraft College in Livonia, Michigan



The need for experienced/educated labor market to fill the many existing job openings in the local plastics industry has convinced Schoolcraft College to develop and introduce two new plastic technology programs. These programs actually are designed to attract two different types of students looking to improve their chances of getting a job in the plastics industry or improving their opportunities at their current position.

"An Introduction to Plastic Materials and Processing" is a 12 week course that is a review of both the various plastics processing techniques and an over view of the different plastic materials that are used in the industry. This is targeted to those already working in the industry who are looking to expand their knowledge of plastics. This course has been offered since the fall of 2013 and has attracted individuals who were in sales, customer service, manufacturing, and product development. They all had the same goal: learn more about the product and processes they work with or discuss every day.

Course Description:

<http://www.schoolcraft.edu/docs/default-source/cepd---career-training/plastic-technology-flyer.pdf?sfvrsn=0>

"Plastics technology Skills Certificate" is a 16 credit certificate program targeted to the individual looking to find out more about the plastics industry and investigate it as a possible change in their career path. It also targets the student just out of high school trying to decide if the plastics industry is where they want to work as well as the person already working in the plastics industry looking to advance their position with their current employer. The program consists of five 15-week courses. The program includes two courses in plastics technology (Processing and Plastic Materials), a course in Quality Management, Technical Math and Basic Metal Processing Technologies. The possibilities for the student are to obtain a job in the industry once the certificate program is completed or deciding to further their studies at a 4 year college and obtain an advanced degree in plastics technology.

Course Description:

<http://www.schoolcraft.edu/docs/default-source/cepd---career-training/plastic-tech-skills-cert-program-flyer.pdf?sfvrsn=0>



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 such that there will be many who will be retiring in the coming years with not enough young 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 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 can be gotten from the link below concerning the PlastiVan™ program.

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



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TPE TOPCON 2014 OVERVIEW

We had another successful TPE TOPCON in September. The event was again sponsored jointly by the SPETPE Special Interest Group (SIG) and the Akron SPE Section. There were 26 technical and marketing presentations delivered to an attendance of 160 people. Feedback from the attendees was positive with respect to presentation content and also the general flow and organization of the conference proceedings. Thanks to the 16 companies who had exhibitor's tables at the conference. Thanks also to the companies who sponsored the social gatherings during the conference: PolyOne, Kuraway America Inc., A Schulman, TSRC Dexco USA and Total Cray Valley.

A special thanks to those with the Akron SPE section for all they did to make this program a success. Also to Bill Blasius and Mark Berard of the TPE SIG for coordinating the technical program and Viv Malpass and Bob Wegelin of the Akron Section for following up on all the details to be sure all aspects of the conference went off as planned.

See you all at **TPE TOPCON 2017** at the same place in September of 2017.

Look for the announcements to start coming at you by this September



TPE SIG Committee Scholarship Winners

The SPE TPE SIG is proud to announce the 2014-2015 SPE TPE SIG Scholarship recipients.

ALLISON ECKER

Allison is currently a senior in Chemical Engineering/Material Engineering at University of Dayton. Allison has an outstanding academic record, besides studying, she is active with various student chapters; she was the VP and President of the AIChE student chapter and President of Tau Beta Pi. She also finds time to volunteer in the Women in Engineering Program. Allison has completed a Co-Op at Wright Patterson Air Force Base and Emerson Climate Technologies focuses on thermal analysis of thermoplastics and thermosets.

DRAKE STEPHENS

Drake is currently a senior in Plastics Engineering Technologies at Pittsburgh State University. He has an excellent academic record and active in various student chapters such as SPE, Tau Sigma, and Phi Theta Kappa. He is also the President of the local 4-H program. Drake has worked as a Lab Assistant teaching plastics at PSU and has completed an internship at Charloma Inc., a custom plastics production company, where Drake operated several plastics machinery.

ANNA MACHERKEVICH

Anna is currently a senior in Mechanical Engineering at Kittering University. In addition to having a strong academic record, Anna is the Chair of Alpha Sigma Alpha Philanthropy and Vice Chair of the Plastics Engineering Club. Despite her busy schedule, she also finds time to volunteer as Big Brothers and Big Sisters. Anna has completed internships at Chrysler serving in the Supplier Audit Team and at Delphi supporting the translation of files from English to Russian.

Join Us!



www.4spe.org



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TPE SIG Board Meeting Minutes Summary Nov 14, 2014

1. Jeff Munro opened the meeting at 10:05 AM EST.
2. Edwin Tam provided an update from the **Scholarship Committee**.
 - a. Seven scholarship applications were received and the committee recommended that three student applicants each receive a \$1500 scholarship from the TPE SIG.
 - i. Allison Ecker (University of Dayton).
 - ii. Drake Stephens (Pittsburg State University).
 - iii. Anna Macherkevich (Kettering University).
 - b. Sarah Westerdale commented that each of the applicants also had a financial need in addition to good academic qualifications.
 - c. Tom Bell motioned to award \$1500 scholarships to the above three students (seconded by Richard Rabe).
 - i. Motion passed with no opposing votes.
 - ii. Edwin Tam will contact the students and ask for winner bios for the next newsletter.
3. Tom Bell presented an update from the **Nominations Committee**.
 - a. Tom Bell reported that the nominations committee completed the review process for candidate Mukul Kaushik.
 - i. Candidate met all requirements for SIG BOD membership and is expected to be a contributing BOD member.
 - b. Edwin Tam motioned to have candidate Mukul Kaushik join the SPE TPE SIG BOD (seconded by Mark Berard).
 - i. Motion passed with no opposing votes.
 - c. Jeff Munro informed the BOD that the two other SPE members claiming interest in joining the TPE SIG BOD and brought to the BOD's attention by Stephane Morin at the 2014 TPE TOPCON BOD meeting were not formally interviewed.
 - i. One member did not respond to contact attempts and the other member dropped-out during early email exchanges.
 - d. Tom Bell reminded the SIG BOD to continue to forward any potential candidates to the nominations committee.
4. Stephane Morin provided an update regarding **ANTEC 2015**.
 - a. Twelve papers received to date (an additional paper may yet be added for consideration).
 - i. Expecting a ½-day technical session containing 5–6 papers on a Monday afternoon.
 - b. Paper acceptance/rejection notification by December 10th with final revision of accepted papers due on January 16th, 2015.
 - c. Bill Blasius, Tom Bell, and Mark Berard will review papers.
 - i. Richard Rabe also volunteered to review papers if needed.
 - ii. Reviews due "in a couple of weeks" ..
 - iii. It is expected that there will be 5-6 papers acceptable for ANTEC presentation from the twelve received for review.
 - d. Stephane Morin again reminded the BOD that he will moderate the expected single technical session if no other SIG BOD member expresses interest prior to the event.
5. BOD discussion regarding proposed changes to SIG operating procedures document: **BOD membership policy (automatic rotation)** and **BOD meeting quorum**.
 - a. Mark Berard reviewed in detail two proposed changes to the TPE SIG operating procedures document (March 2015 revision) he developed and sent (email – 11/14/14) to SIG BOD members prior to the meeting.
 - i. Jeff Munro noted that BOD officers are elected from SIG BOD members and will therefore be SPE members as well.

TPE SIG Board Meeting Minutes Summary Nov 14, 2014 (con't)

- b. Mark Berard commented that the entire operating procedures document needs to be reviewed to make sure it matches with actual SIG BOD practice.
 - i. Jeff Munro noted Mark Berard's comment and tabled further discussion of additional operating procedure changes until a later SIG BOD meeting.
- c. Bob Abell asked Mark Berard how midterm resignation of a SIG BOD member will be handled.
 - i. Mark Berard informed the BOD that the replacement member joining the BOD would complete the remaining portion of the term of the BOD member he or she replaced.
- d. Richard Rabe again noted that the number of voting BOD members should be fixed at an odd number should quorum be set at a simple majority of voting BOD members.
 - i. Informal SIG BOD agreement that this issue should be reopened if or when the number of voting BOD members becomes an even number.
 - ii. Formal motion statement:
(Found in *Article V-I: Directors - Duties and Responsibilities* of operating procedures.)
Replace "A quorum at a meeting will be two thirds of all voting Directors and Officers."
with the statement "A quorum at a meeting will be two thirds of all voting Directors and Officers for changes to the SIG policies, elections, removal of a Board member, or for agreement to disburse funds. A quorum at a meeting will be one half of all voting Directors and Officers for other topics. In the event a quorum cannot be reached at the meeting or conference call, electronic ballots or absentee ballots are allowed before or after the meeting."
 - 1. Motion passed with no opposing votes.
- e. Edwin Tam motioned to change the SIG BOD membership policy in the operating procedures document beginning at the ANTEC 2015 BOD meeting (seconded by ?).
 - i. Formal motion statement:
(Found in *Article V-I: Directors - Duties and Responsibilities* of operating procedures)
Replace the first two paragraphs - "Directors are elected by a vote of the existing Board and Officers. They are expected to serve a minimum term of three years. There is no maximum limit. Candidates for the Board are interviewed by at least two Directors and or Officers of the SIG. They need to have a commitment from their employer (if applicable) to serve on the board. They must be a SPE member."

"Vacant positions are filled by a vote of the remaining Board members at the next Board meeting. A quorum at a meeting will be two thirds of all voting Directors and Officers."
with the two paragraphs - "Directors are elected by a vote of the existing Board and Officers. They are expected to serve a term of three years. Candidates for the Board are interviewed by at least two Directors and or Officers of the SIG. They need to have a commitment from their employer (if applicable) to serve on the board. They must be a SPE member. They may be elected to another three year term. Elections shall be arranged so that no more than one third of the Board is up for election in any given year".

"Vacant positions are filled by a vote of the remaining Board members at the next best opportunity and will serve out the remainder of the term of the vacated board position."
 - 1. Motion passed with no opposing votes.
- f. The BOD informally agreed that the BOD secretary will maintain a document (included within the SIG BOD roster) that tracks the election schedule of all SIG BOD members.



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TPE SIG Board Meeting Minutes Summary Nov 14, 2014 (con't)

6. Armando Sardanopoli provided an update regarding the **Newsletter**.
 - a. The next TPE SIG newsletter is scheduled for publication in January 2015.
 - i. Armando Sardanopoli requested a company profile/overview from one of the SIG BOD member's employers.
 1. Edwin Tam will ask the TPE Division of Teknor Apex if they would like to be featured.
 - ii. A list of papers for presentation at ANTEC 2015 will be published (Stephane Morin).
 - iii. Information on the recent TPE SIG scholarship winners will be included (Edwin Tam).
 - iv. A summary of the latest SIG BOD meeting minutes will be published (Armando Sardanopoli).
 - v. A letter from the TPE SIG chair will be printed (Jeff Munro).
 - vi. A review of TOPCON 2014 will be included (TBD).
 1. Armando Sardanopoli will email members of the two SIG TOPCON committees asking for a review.
 - vii. An update of Armando Sardanopoli's plastics-related work at Schoolcraft Community College will be provided (Armando Sardanopoli).
 - b. A link to the next newsletter (routing to the SPE TPE SIG microsite) will be posted on various "elastomer related" LinkedIn sites.
7. Jeff Munro asked for any **New Business**.
 - a. Armando Sardanopoli requested TPE SIG funding for two PlastiVan school visits in the Michigan area at a maximum cost of \$1500 per visit.
 - i. Richard Rabe made a motion to approve above expenditure (\$3000 maximum). Motion seconded by Edwin Tam.
 1. Motion passed with no opposing votes.
8. The next TPE SIG BOD meeting (teleconference) will be held on **Thursday**, January 15th at 10:00 AM EST.
9. Jeff Munro adjourned the meeting at 11:06 AM EST.

Meeting minutes submitted by TPE SIG Secretary, Steve Brenno



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January 2015

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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.