



2017 SECTION AWARDS

PINNACLE GOLD

COMMUNICATION
EXCELLENCE

MEETING LOCATION:

Olde Mill Inn

225 Morristown Rd. (Rt. 202)
Basking Ridge, NJ 07920

THURSDAY OCTOBER 19, 2017

4:00 PM Board Meeting, [Fieldstone Room](#)

5:30 PM Networking

6:00 PM Dinner, [Passaic Room](#)

Members and Guests	\$40
At Door	\$45
Students/Unemployed	\$15

RSVP by Oct. 18 to Pete Hayles

peterhayles11@gmail.com 732-569-2368

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EXPLORING THE USE OF MICRONIZED RUBBER POWER IN THERMOPLASTIC ELASTOMERS FOR AUTOMOTIVE APPLICATIONS

HAIKUN XU, ENTECH

OCTOBER 19, 2017

Thermoplastic elastomers (TPE) have been extensively used for automotive applications because of their great elastomeric properties and ease of processing. To further improve the physical and mechanical properties and lower the costs, various fillers for TPEs, including talc, calcium carbonate, mica, and wollastonite, have been studied. In the authors' previous study, micronized rubber powders (MRPs) have shown superior compatibility in thermoplastic polyolefins (TPOs) and excellent elastomeric properties while retaining the ease of processability and lowering costs of the compounds significantly. However, a few challenges need to be addressed. In this study, MRP-filled TPEs were compounded by twin-screw extrusion at various loading ratios of MRPs, and the effect of sizes of MRPs on the final compounds were investigated. The physical and mechanical properties (MFI, tensile, flexural, Izod impact, etc) were tested to study the overall performance of the compounds. The thermal properties of the compounds were characterized by TGA and DSC. In addition, the surface details of injection molded parts were studied and induction-heated molding was implemented to improve the surface finish for automotive applications. Finally, multiple conventional plastic processes (including sheet extrusion and rotational molding) were explored, and parts made out of MRP-filled compounds were demonstrated to discover more potential applications.

Speaker biography

Dr. Haikun Xu obtained a master's degree in Materials Science from WPI and a doctoral degree in Plastics Engineering from UMASS-Lowell. He joined Entech, Inc in 2015 and is currently heading up the R&D efforts in custom compounding using micronized recycled tire rubber particles in different plastic systems to offer the value-enhanced material solutions by improving the performance of the compounds at low cost, and provide sustainability to the world and plastic industries. Other than research, Haikun enjoys rock climbing and jumping out of perfectly good airplanes.

PRESIDENT'S MESSAGE



Keeping up with the dynamics of the global plastics industry is the bane of engineering professionals everywhere. Advancements in this industry are daily with constant innovation. We are all expected to keep current not only with plastic materials and molding processes but with other technologies such as additive or direct digital manufacturing (AM or DDM), software for topological design, producing smart devices with imbedded electronics (the IOT), and manufacturing automation and data exchange (Industry 4.0) to name a few.

In addition to these exciting technologies, plastics industry professionals have seen tremendous change: transformation from economies of scale to economies of scope. In recent years, molding facilities were centralized, usually large for mass production, were very specialized, produced standardized parts and used inventory as a buffer. Gone are the days of buying resin, molding stuff, and stocking the shelves. Today molders have flexible lines, many custom products, share joint costs and produce extremely fast tooling and piece parts.

The plastics manufacturing community has certainly changed its logic in recent years, embracing the many new production technologies and adapting to a global market. Product requirements went from unique specifications for each region to harmonized specs for the one global market, from parts geared to specific factories to parts not being over constrained (design and manufacture anywhere, DAMA), and products described using extensive documentation moved to harmonized paper-free CAD/CAE and product data management tools.

The engineering community continually embraces change and has also developed new plastics design and manufacturing logic. Designs went from sequential to concurrent development and much physical testing was replaced with computational analysis and simulation. Where vendors bid at the end of the design phase, now these vendors or suppliers are in early design phases creating high early confidence and shorter market introductions. Designers, engineers, tool makers and manufacturing personnel use collaboration models to meet the challenges of our dynamic market and ever-changing technology.

The plastics community is fortunate to have the Society of Plastics Engineers (SPE) there to provide the needed education at the local level to help members thrive in the changing market, adopt these new technologies, and specify the best of new ma-

terials and processes. Some of our recent Palisades–New Jersey meeting topics have included additive manufacturing processes, new chemistries and compounding, machine technology for extrusion, design for injection molding quality, efficient use of social media tools, large part forming, and vinyl technologies. It is interesting to see how many great firms participate in local Sections such as ours. In our Palisades–New Jersey Section, we are fortunate to have members from leading companies such as Arkema, A Schulman, BASF, Becton Dickinson, C&K, Dow, Leistriz, Milacron and SABIC, to name a few.

We ask all members and their companies to consider presenting your latest technologies, tactics and techniques at one of our monthly meetings. If you or someone you know would like to present, please contact any officer or Board member (contact information on last page).

Jack Dispenza

President, SPE Palisades-New Jersey Section
Society of Plastics Engineers, Fellow
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Budget and performance to date:

Wiley and Sons has made a infusion of 1.5 million; they see the e-membership as very helpful to their organization.

ANTEC® 2017 made a profit of \$200,000, but had high expenses and therefore did not meet the budget projections. YTD SPE revenues are a little below budget.

The New CEO Pat Farrey is getting up to speed on all the systems and revenue streams; he will monitor revenues and expenses to manage the balance of 2017.

Redesigning ANTEC® :

It is generally recognized that ANTEC® is no longer relevant. This re-design will probably not happen until ANTEC® 2019 because they will want to review all the data they have collected. One of the areas that has been identified is the need to involve companies rather than academia in the programming, especially in NPE years. In 2018, one of the opportunities that has been offered as a result of ANTEC® 2018 co-locating with NPE is Technical Marketing Presentation Opportunities. ANTEC® 2018 will allow commercial presentations; they will need to include technical data to support the claims in the presentation and a minimization of logos and other “sales” tools. They will not require a paper; a powerpoint will need to be submitted ahead of ANTEC® (deadline Dec. 15, 2017), and SPE will have to have the right to publish.

For more information, see 4spe.org/antec.

The NGAB (Next Generation Advisory Board) is growing in number and has 67 members at this time. They consist of a group of “under 35” individuals who are in the industry and understand the culture of millennials. They have been taking an increasing role at ANTEC® and recently took an active role in the first Injection Molding Topcon.

New Pinnacle Award:

Criteria for the Pinnacle award is being re-evaluated and rolled out in the next few months. However, the Councilors voted that the current Pinnacle award criteria should be left in place until ANTEC® 2018. The new award criteria should be initiated at that time.

Membership and membership services:

There was a lot of discussion about membership and membership services. The membership seems to be “stuck” around 20,000. There is a category called e-membership which they hoped would be a source of new full members. This has not

been happening, although MHB thinks part of the explanation is recent turnover in the organization. We have a new CEO, the managing director Russell Broome has now resigned, and the business development person recently left for another opportunity. The E-membership category will be evaluated as to whether it is being fully exploited.

One of the first areas of attention for the new CEO is systems (IT) and services along with a more streamlined membership retention process. Many members complain that if they let their membership lapse they cannot renew online; this is an area that needs to be simplified.

It was also felt that the staff needs to be more supportive in registration and services for conferences. One of the tools mentioned was E-touches, which is a tool for online registration. It can be a cost savings, however it does not fully integrate with other systems. Pat feels this is an area that can be improved.

Sections Committee

The Sections committee has been re-invigorated after a de-emphasis of sections in the last administration at SPE. There is a renewed recognition that for many potential members and existing members, the Section is their first exposure to SPE. The committee is headed up by an executive committee member (VP) Monica Verlein and has about 9 members. The committee has been meeting every 3 weeks and has three key objectives: Make sure the sections know that the committee exists and is there for them.

Understand the best practices of the current sections and have a source on the website for section boards to visit to learn about what other sections are doing

Provide service and vehicles for sections that will bolster their individual and collective needs, (e.g., communication templates, content for websites and newsletters, assistance in management of educational awards and implementation of these programs, networking opportunities).

Plastics Foundation

Eva Vitale, who is the foundation director, made a very good presentation on the Foundation, summarized here:

The Plastics Van program has been increased to \$1750 per day, but there are vehicles available to help fund a program if there is a need.

continued on page 4

The Foundation manages a number of scholarship program and is willing to administer one for a section or division if desired.

There is an individual opportunity to donate to the foundation. There is a donate button on the foundation website where an individual can donate any sum.

At Pat Farrey's request, Eva made a presentation to us as if we were a class of students and had some experiments for us to perform. It was a lot of fun and good for us to experience. In addition to both days of meetings, we had a tour of the Ford F150 Rouge factory in Dearborn. It was a great tour and an excellent experience. If you find yourself in Detroit, see if you can take advantage of the opportunity. ANTEC® 2019 will be in Detroit—plan on going and taking the tour.

M.H. Baumann
Councilor, Palisades New Jersey Section

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And our Website
www.SPE-PNJ.org

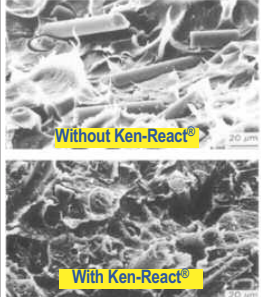
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SECTION NEWS

Welcome New Members

Brian Ehrhardt

Design Engineer at ZIPPAK

Shawn Feeney

Marketing Director at Evonik Corporation

Steven Udwin

Managing Partner at Woodland Consultants LLC

UPCOMING MEETING DATES

Oct. 19, 2017	Section Meeting, Entech Presentation
Dec. 7, 2017	Section Meeting, BASF Presentation
Jan. 18, 2018	Section Meeting
Feb. 15, 2018	Section Meeting
March 15, 2018	Section Meeting, TBD Possibly at Rutgers
April 19, 2018	Section Meeting
May 7-10	ANTEC®
May TBD	Awards Meeting

Also Mark Your Calendars for These Dates:

Oct. 17, 2017 Lehigh Valley SPE
5:30 pm Section Technical Talk

Techmer PM TechmerVision web-based design tool for color communication (Campus Pizza for Dinner, Technical Talk to Follow at Lehigh University, 22 E 4th St, Bethlehem, PA 18015) RSVP to lehighvalleyspe@gmail.com.

Dec. 7, 2017 Palisades New Jersey
5:30 pm Section Meeting, Olde Mill

High Performance UV Stabilizers and Specialty Flame Retardants for Polymer Products: Technologies and Applications, presented by Joseph Fay, Ph.D., Technical Fellow, Plastic Additives, BASF Corporation, Tarrytown, NY.

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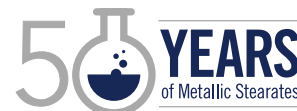
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