



# **SPE Thermoplastic Elastomers Conference (TPE TOPCON) 2020 Exploring Sustainable Innovation Wrap-Up**

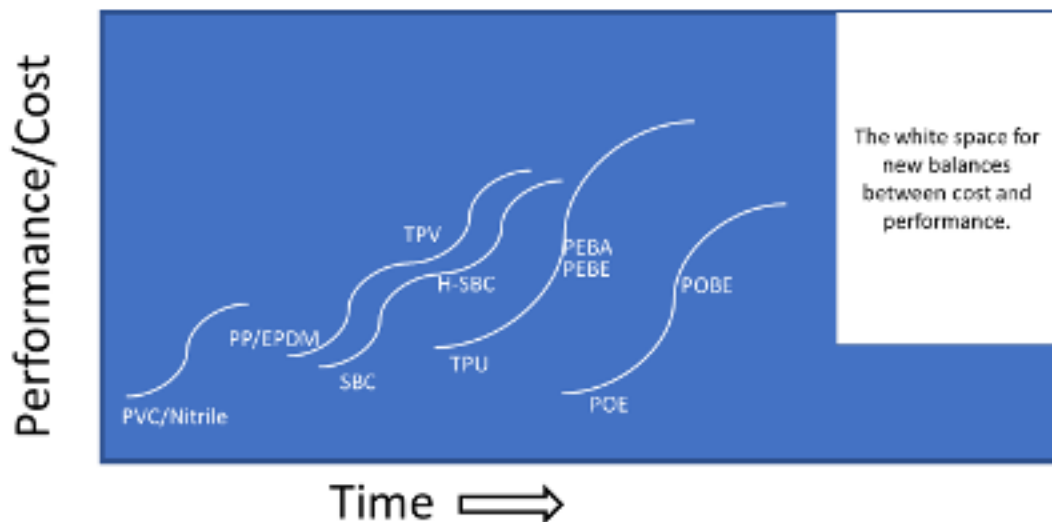
Another TPE TOPCON is behind us. Given the level of human tragedy that 2020 has delivered, we should consider ourselves blessed that we were able to continue with our conference with only a change of venue. Going into the spring, we had no idea what September might look like for travel and large gatherings. We anticipated that things were not going to be better and that companies wouldn't be supporting discretionary spending for travel to conferences. The safety of our presenters and attendees became our top priority. Turns out we were right to have our first virtual edition of TPE TOPCON as a three-way partnership between the TPE Special Interest Group, SPE Akron Section and SPE International. The SIG took care of the technical program, the Akron section focused on sponsors and promotion and SPE headquarters handled conference digital logistics and advertising blasts including a YouTube video extravaganza featuring Bill and Homaira. We all learned along the way and the conference went as smoothly as our in-person conferences. Our biggest regret is cancelling the TPE Primer that had been gaining momentum year over year. Most of the magic in the Primer was having full access to industry experts during the capstone case studies and we felt the magic would be lost through miles of cable.

These are the opening slides introducing the virtual edition of TPE TOPCON 2020:

## Exploring Sustainable Innovation

- Every edition of TPE TOPCON comes with a theme to help guide the content and programming.
- Why sustainable?
  - Sustainable from a resource perspective
  - Sustainable from continuous improvement perspective
- Why innovation?
  - Innovation happens at the intersections of trends and with this conference we want to explore industry and societal trends and leave it to you to find your crossroads.

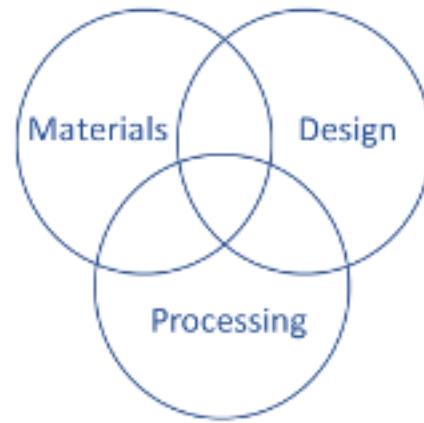
## Exploring Sustainable Innovation



## Exploring Sustainable Innovation



Personal Innovation



Industry Innovation

## Exploring Sustainable Innovation



Our mission for the next two days is to bring it all together using the lens of trend analysis.

This year, we wanted to explore new ways to expand people's views on the future of TPE materials and applications. To this end, we integrated market trend talks on automotive interiors, international regulations, industrial design and the future of compounding equipment. Having always considered trend analysis as a necessity for influencing the direction of innovation, we were fortunate to have Bob Eller (Robert Eller Associates), Alicia Bergeron (Executive Polymer), René Polin (Balance Innovation and Design) and Dr. Paul Andersen (Coperion) leading us forward. They built a solid framework for the conference presentations.

Typically, TPE TOPCON would showcase two keynote talks. This year hasn't been typical, so we had three. We had two technical talks and a business re-invention talk. We were honored to have Dr. Judit Puskas of The Ohio State University and Dr. Richard Spontak of North Carolina State University presenting keynotes on their research in unique elastomers for biomedical applications. Both professors have received multiple honors by their peers in multiple professional societies. Jason Hauer from the Garage Group delivered the third keynote on being courageous in your efforts to break free from the past and reinvent the start-up that was your foundation. The Garage Group has helped companies from P&G to PPG to confront their embedded bureaucracies and policies that confound innovators.

The main conference was broken up into sections on Automotive Innovation and Sustainability, Biomedical Applications, Material Focus and Integrating Process, Design & Materials for Tomorrow.

Here are the presenters and their topics:

Moderator: William Blasius, Rogers Corporation, TPE TOPCON Co-Chair			
Automotive Innovation and Sustainability			
9:00 - 9:30	Robert Eller	Robert Eller Associates LLC	TPE Opportunities in a Recessionary, Shifting Automotive Interior Environment
9:30 - 10:00	Dr. Alper Kiziltas	Ford Motor Company	Improving the Sustainable Content in Thermoplastic Elastomers

10:00 - 10:30	Shinya “Smokey” Oshita	Kuraray America, Inc	HYBRAR™ SV-Series, New Hydrogenated Styrenic Block Copolymers With Excellent Damping Performance
10:30 - 10:40	Break		
10:40 - 11:10	Dr. Amit Desai	Kraton Polymers US LLC	Kraton SEBS Polymers for Automotive Applications
11:10 - 11:40	Dr. Sat Nistala	The Lubrizol Corporation	Method of Making Carbon Fiber Articles Laminated With Thermoplastic Urethane (TPU) Films for Light Weight Automotive Applications — A disruptive Methodology
11:40 - 12:10	Dr. Sam Kharchenko	BASF	PU-based Composites as Sustainable Choice for Rubber Replacement
12:10 - 1:00	Lunch, Honors and Sponsor/Exhibitor Time		
Moderator: Homaira Naseem, AlphaGary Corporation, Technical Program Co-Chair			
1:00 - 1:45	Jason Hauer	The Garage Group	KEYNOTE: Innovation Renewal and the Garage Group Story
1:45 - 2:15	Faith Howard	ExxonMobil	Innovative Santoprene™ B265 Grades for Automotive Corner Molding and End-cap Weatherseals
2:15 - 2:45	Edgar Gonzalez	Synesis LLC	A Recycled Content Material Solution for TPV Applications
2:45 - 3:00	Break		
Biomedical Applications			
3:00 - 3:30	Dr. Elda Hegmann	Kent State University	Liquid Crystal Elastomers for Biomedical Applications
3:30 - 4:00	Dr. Abraham Joy	University of Akron	Degradable Polyester Elastomer Platform

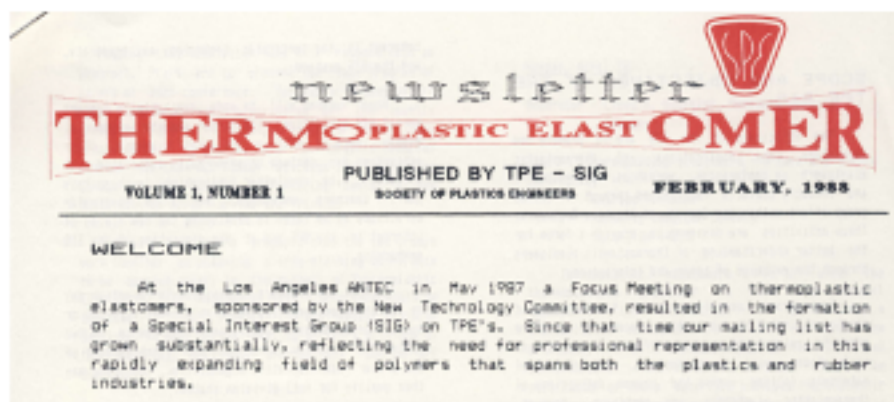
4:00 - 4:30	Dr. Bhavesh Shah	ExxonMobil	Innovative Santoprene™ TPVs for Medical, Industrial and Consumer Applications
4:30 - 5:00	Alicia Bergeron	Executive Polymer, LLC	A 2020 View of the Evolving Global Regulatory Environment
Moderator: Bardia Guilani, Otis Elevator Company, TPE SIG Board Chair			
Material Focus			
9:00 - 9:30	Chi Jui (Ray) Hsieh	LCY Group	An Ultra High Molecular Weight SEBS Polymer for High Temperature TPE Applications
9:30 - 10:00	Salvatore Monte	Kenrich Petrochemicals Inc.	Repolymerization and Compatibilization of Thermoplastics in Post-consumer Recycling Processes by Using Titanate Ester Catalysts
10:00 - 10:30	Dr. Prakash Sanjeevaiah	Star Thermoplastics	Novel Developments for Overmolding Thermoplastic Elastomers to Engineering Plastics
10:30 - 10:40	Break		
10:40 - 11:25	Dr. Judit Puskas	The Ohio State University	KEYNOTE: Piezo Active Elastomers for Biomedical Applications
11:25 - 12:10	Dr. Rich Spontak	North Carolina State University	KEYNOTE: Strategic Routes to TPE Designs for Broad-Spectrum Antimicrobial Performance
12:10 - 1:00	Lunch and Sponsor/Exhibitor Time		
Moderator: Armando Sardonopoli, S-SEC LLC			
Integrating Process, Design, Materials for Tomorrow			
1:00 - 1:30	Dr. Rigoberto Advincula	Case Western Reserve University	3D Printing With Thermoplastic Elastomers
1:30 - 2:00	Dr. Will Mars	Endurica, LLC	Durability of 3D Printed Elastomer Structures

2:00 - 2:30	Dr. Paul Andersen	Coperion	TPE Compounding 2030
2:30 - 3:00	Rene Polin	Balance Innovation + Design	Trends in Material Utilization from an Industrial Design Perspective
3:00 - 3:15	Break		
3:15 - 3:45	Yash Adhia	TA Instruments-Waters LLC	Thermal Mechanical Testing of Elastomers
3:45 - 4:15	Dr. Arthur Martin	Daikin America, Inc	Low Loss Dielectric Polymeric Laminates for Electronics
4:15 - 4:45	Gregory Sanders	BASF	Infinergy TPU Foam Beads for Cushioning and Rebound
4:45 - 5:00	Co-Chairs		Closing Remarks and Virtual Networking

The recorded presentations can be found at the SPE's Event Recordings Page at <https://www.4spe.org/i4a/pages/index.cfm?pageid=5631>. And if you missed the conference, it's still waiting there for you to register and take it all in at your convenience.

We really enjoyed being able to take some time on the first day to honor Dr. Lloyd Goettler and the founders of the TPE SIG and their vision in initiating the first TPE symposium in 1988. Their energy and foresight have propelled us to this point.

## A Little History: The First Newsletter February 1988



## A Little History: Who Was Behind The SIG?

BOARD OF DIRECTORS			
CHAIRMAN:	Lloyd A. Swellbar Monsanto Chemical Company 280 Springdale Drive Akron, Ohio 44322 (216) 862-8254	TECHNICAL PROGRAM:	MIKO Czakosz Polymer Engineering Cl. University of Akron Akron, OH 44325 (216) 375-9555
NEWSLETTER:	Wesley L. Packer Copus Indust. Minerals Co. 240 Oakhurst Rd. Middletown Falls, OH 44262 (216) 638-2189		K. E. 9th St Monsanto Chemical Co. 3000 Norville Rd. Weddsworth, OH 44281 (216) 336-7641
		ASHOK ADAR BP Performance Polymer P.O. Box 400 Haskell, Okla., OK 73640 (805) 893-7000	JOHN A. HUBBEN Medi-Tech Company 450 Pleasant St. Woburn, MA 02272 (216) 523-1730

Lloyd Goettler, Monsanto

Miko Cakmak, U of Akron

Ed Shen, Monsanto

Wesley Packer, Cyprus Minerals

Ashok Adur, BP Performance Polymers John Hudson, Medi-Tech

## Honoring Dr. Lloyd Goettler



- As a member of the SPE Executive Committee and chair of the New Technology Committee, Dr Lloyd Goettler made a presentation to the Divisions Committee which resulted in the creation of the TPE Special Interest Group.
- Dr. Goettler earned his bachelor's degree in chemical engineering from Cornell and PhD from the University of Delaware.
- In addition to SPE (President's Cup award), he has been active in the American Institute of Chemical Engineers, American Chemical Society, Polymer Processing Society and the Society of Rheology.
- After a patent, book chapter, and journal paper filled career at Monsanto, Dr. Goettler turned his talents towards teaching and joined the University of Akron.
- Thank you Dr. Goettler for your vision, leadership and dedication to creating a space within SPE, where TPE knowledge can be accessed and diffused!

## A Little History: Who Has Kept the SIG Going?

Thank you for your long-term dedication to the mission of sharing knowledge about thermoplastic elastomers!

- |                       |                   |
|-----------------------|-------------------|
| • Laura Weaver        | • Robert Abell    |
| • Rudy School         | • Ken Kear        |
| • Charles Rader       | • Robert Wegelin  |
| • Thomas Bell         | • Edwin Tam       |
| • Mark Berard         | • Reza Sadeghi    |
| • Armando Sardanopoli | • Joseph Pfeiffer |
| • Iani Manas          |                   |



## A Little History: The First TPE Symposium At ANTEC (Atlanta)

### Day 1

Monday, April 18

Moderator: Lloyd Goettler, Monsanto Chemical Company

- 2:00 **Thermoplastic Elastomers - A Rare and Unusual Opportunity**  
Charles Rader, Monsanto Chemical Company
- 2:10 **A Review of Technology and Performance of Olefinic Thermoplastic Elastomers**  
David Chang & Ashok Adur, BP Performance Polymers, Inc.
- 3:00 **Coextruded Elastomeric Optical Interference Films**  
Walter Schrenk & John Wheatley, Dow Chemical Company
- 3:30 **Processing Structure-property Relationships in Biaxially Stretched EPDM/PP Thermoplastic Elastomers**  
M.D. Wang & M. Calmak, University of Akron
- 4:00 **Molding Techniques for Melt Processable Rubber**  
Robert Stuart, DuPont
- 4:30 **A New High Performance Conductive Thermoplastic Elastomer**  
John Hudson, Medi-Tech  
Thomas Minosina, J-Von  
Robert Malloy, University of Lowell



## A Little History: The First TPE Symposium At ANTEC (Atlanta)

### Day 2

Tuesday, April 19

Moderator: Prof. Milko Calmak, University of Akron

- 2:00 **History, Development and Future of Polyester Elastomers**  
W.K. Whaley, DuPont
- 2:30 **A New Class of High-Performance Elastomeric Thermoplastics**  
Robert Saltman & Barbara Vemell, DuPont
- 3:00 **Clear Thermoplastic Elastomers**  
Dwight Dixon, GLS Plastics
- 3:30 **Recent Advances in Thermoplastic Elastomers**  
Robert Puydak & Donald Hazelton, Exxon Chemical Company
- 4:00 **Engineering Thermoplastic Elastomers (ETE) Tackle the Tough Jobs**  
Thomas Sheridan, DuPont

## A Little History: The vision for TPE TOPCON

We have furthermore proposed that the two groups work together on planning a free-standing conference to be devoted solely to the subject of Thermoplastic Elastomers. The timing for this conference would be sometime in 1990. Even if the ACS Rubber Division declines, we will pursue a RETEC on TPE's with one of the SPE local Sections, and perhaps another SPE Division.

1988 TPE SIG newsletter

This eventually turned into a longstanding collaboration between the TPE Special Interest Group and the Akron Section. The SIG arranged the technical program, and the Section handled the site logistics and planning.

## Honoring Dr. Vivian Malpass



- Dr. Vivian Malpass has been the driving force for TPE TOPCON from the Akron Section.
- He earned his PhD in Chemistry from the University of Wales
- From 1960 to 1996, he worked on rubbery toughening systems and TPE's before retiring in Ohio. Multiple book chapters, 35 published papers and numerous presentations are part of his polymer legacy.
- He founded Tek-Mark International to continue consulting and teaching.
- Viv was the President of SPE International in 1989, is a Distinguished Member of SPE and a member of the Plastics Pioneers Association of the ACS.
- We would like to thank Dr. Malpass for his boundless energy and extreme dedication to making certain that TPE TOPCON was always a world class conference.



## Honoring Dr. Kenneth Kear

- Dr. Kenneth Kear is one of the pioneers of TPV's and has been a prolific writer and presenter on the processing and properties of thermoplastic elastomers.
- He earned his PhD in Physical Chemistry from Case Western Reserve University.
- From 1975 to 2003, he worked with Santoprene while employed by Monsanto, AES and ExxonMobil.
- He was an early recruit onto the TPE SIG board of directors.
- He founded Kear Technology to continue consulting and helping develop the next generation of technologists.
- Besides his scientific skills, Ken has artistic skills that he has lent to us in the form of "Mr. Stretchy", our conference mascot. We would like to thank Dr. Kear for sharing his time and talents with the TPE SIG and TPE TOPCON through the many years.

We can't thank our sponsors enough. Gold: Kuraray Americas. Silver: Datapoint Labs, Harwick Standard. Bronze: AlphaGary, Endurica, Kenrich Petrochemicals, Zylog, Star Thermoplastics, Novvi. This year was unconventional and we appreciate your support.

**kuraray**

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PASSION FOR ELASTOMERS

With 2020 behind us, we can look forward to TPE TOPCON 2022. Homaira Naseem and Nick DeLuca will be your Technical Program Co-Chairs. Please consider lending your support in gathering presentations, sponsors and exhibitors.

Thank you all,

Bill Blasius, Co-Chair TPE TOPCON 2020

Homaira Naseem, Co-Chair Technical Program TPE TOPCON 2020

