THE WORLD'S LEADING AUTOMOTIVE POLYOLEFINS FORUM

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TPO® 2025 GLOBAL AUTOMOTIVE CONFERENCE

Troy, MI USA • Sept 29-Oct 1, 2025

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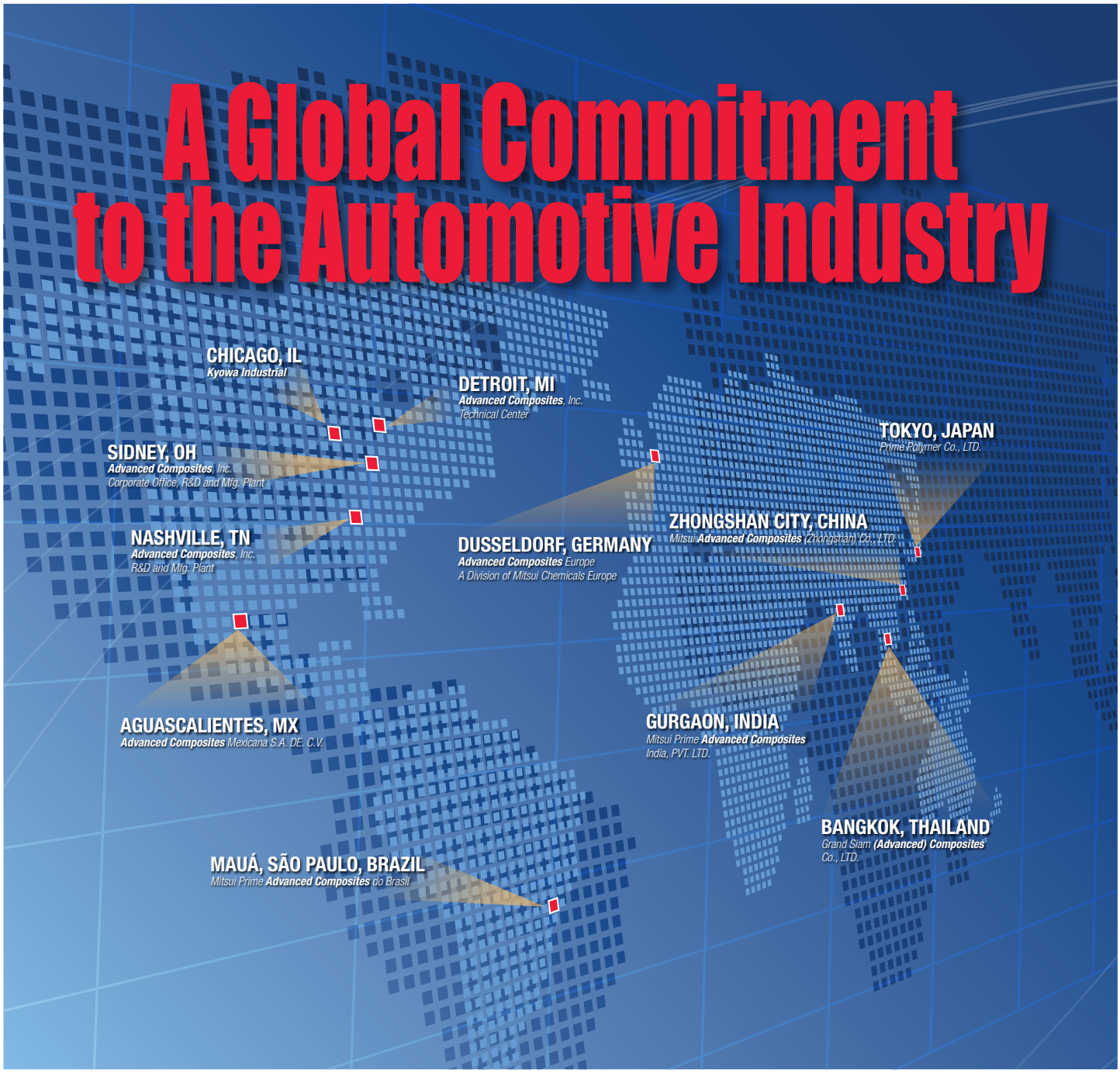

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Welcome

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Mike Balow,
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Welcome to the 2025 SPE TPO Global Automotive Conference – the World's Leading Automotive Polyolefins Forum!

This year is more than a milestone—it is a celebration. For 26 years, this conference has been the heartbeat of innovation in automotive polyolefins, and in 2025 we are raising the bar higher than ever.

The automotive industry is evolving at lightning speed. From the rapid rollout of EVs to the urgent drive for sustainability, the materials we choose and the technologies we develop are reshaping mobility as we know it in a dynamic environment. Our theme, Leading Innovation, captures this spirit of transformation—spotlighting the breakthrough solutions and sustainable strategies that will define the future of vehicles worldwide.

Together with the Society of Plastics Engineers (SPE) Detroit Section, the 2025 Conference Planning Committee is thrilled to welcome you to two days packed with insight, collaboration, and inspiration. This year's program is bigger, bolder, and more forward-looking than ever before.

We will kick things off with keynote insights from **Ramesh Iyer,** ***ICIS,*** diving into the challenges of global polypropylene—from overcapacity to demographic shifts and tariffs. Following that, a powerhouse **Automotive Exteriors Panel** featuring experts from ***Honda, Tesla, General Motors,*** ***and Rivian*** will unpack the latest in design, performance, and innovation.

On Wednesday, **Jan Kalfus, PhD,** ***S&P Global Commodity Insights,*** will shed light on the future of the chemical supply chain for TPO, followed by another outstanding talk by **Dr. Hendrik Mainka,** ***Volkswagen Group of America,*** who will share Volkswagen's bold vision for sustainability and circular vehicle strategies. The day continues with a dynamic **Automotive Interiors Panel** featuring leaders from ***General Motors, Ford Motor Company, Hyundai-Kia, LyondellBasell,*** and more.

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Dr. Pravin Sitaram,
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David Helmer,
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Dr. Norm Kakarala,
SPE Fellow and Honored Service Member

Beyond the Keynotes and OEM-led Panel Discussions, our **Technical Program** has been reimagined with ***more than 50 innovative presentations across seven Sessions*** highlighting next-gen technologies such as additive manufacturing, advanced materials, and sustainability-driven innovations. We've also continued our popular **Executive Marketing Forum** providing yet another platform for companies to elaborate on their contributions to the space. We're also excited to offer expanded Student Participation this year, with presentations from ***Ecotek Lab,*** and a special **Student Project Poster Competition** over the program days.

And it does not stop there. Our iconic, integrated **Exhibition** areas will be buzzing with energy, highlighting the latest advancements from the ***platinum and gold sponsors,*** as well as ***exhibitors,*** while the **Platinum-sponsored Receptions, Networking Sessions,** and extended exhibit hours create endless opportunities to connect, collaborate, and ignite new partnerships. With over 600 attendees expected, this is where the future of automotive polyolefins is being shaped.

We owe a huge thank-you to our ***42-member volunteer Planning Committee*** whose dedication and expertise have made this program possible. And we thank our attendees—for bringing your ideas, energy, and passion to this event. Your feedback and participation continue to make this conference stronger every year.

Here is to 26 years of groundbreaking innovation—and to the next chapter of discovery, sustainability, and transformation in automotive polyolefins.

Welcome, and let us continue making history together!

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Dr. Murali Reddy, CCC Plastics
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Dr. Dave Patel, GuruTech Systems, Inc
Dr. Nadeem Bokhari, Sumika Polymers NA

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Dr. Bin Sun, SABIC
John Walling, LyondellBasell
Dr. Birat KC, Magna International

PERFORMANCE ADDITIVES & COLORANTS
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Heejung Kwon, SONGWON
Josh Cram, Continental Surface Solutions

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Dr. Raziyeh Mohammadi, Ford Motor Company
Isabel Newton, Hyundai-Kai America Technical Center, Inc.

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Rob Philp, Sirmax
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AUTOMOTIVE INTERIORS PANEL DISCUSSION
Austin Wagenhals,
Ford Motor Company
Dr. Raziyeh Mohammadi,
Ford Motor Company
Isabel Newton, Hyundai-Kia America Technical Center, Inc

AUTOMOTIVE EXTERIORS PANEL DISCUSSION
Mark LaPain, Advanced Composites

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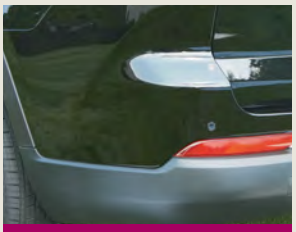

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EV & Hybrid Vehicles

100+

Charging Stations

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SPECIAL HIGHLIGHTS

MONDAY 9 | 29 SETUP / RECEPTION

All Times Shown in EDT USA (UTC - 04:00)

12:00PM - 6:00PM	EXHIBITION SETUP
5:00PM	EVENING RECEPTION *SPONSORED BY* ***FORMOSA PLASTICS GROUP***

TUESDAY 9 | 30 EXECUTIVE MARKETING FORUM

1:30PM - 4:30PM — SPECIAL PRESENTATIONS BY OUR SPONSORS AND EXHIBITORS NILES I AND NILES II ROOM

	NILES I	NILES II
1:30PM - 2:00PM	Mid Michigan Plastics	Mitsubishi Chemical Group
2:00PM - 2:30PM	Omya	Labs Cubed
2:30PM - 3:00PM	S & P Global	Spartan Polymer
3:00PM - 3:30PM	BREAK	BREAK
3:30PM - 4:00PM	Kingfa	Cupron Performance Additives
4:00PM - 4:30PM	Forvia	OPEN

TUESDAY 9 | 30 ECOTEK LAB STUDENT POSTER COMPETITION

8:00AM - 5:15PM — STUDENT POSTERS DISPLAYED IN HALLWAY
ATTENDEE CHOICE VOTING OPEN

WEDNESDAY 10 | 1 ECOTEK LAB STUDENT POSTER COMPETITION

8:00AM - 4:00PM — STUDENT PARTICIPATION AND POSTER COMPETITION

8:00AM - 10:30AM — STUDENT POSTERS DISPLAYED IN NILES I & II ROOM
ATTENDEE CHOICE VOTING OPEN

10:30AM - 11:30AM — COMMITTEE JUDGING IN NILES I & II ROOM

1:30PM - 2:00PM — ECOTEK LAB PRESENTATIONS AND POSTER COMPETITION AWARDS IN HALLS I-II-III

REV.7

2025 AGENDA TUESDAY 9 | 30

All Times Shown in EDT USA (UTC - 04:00)

AM 7:00 — **REGISTRATION / EXPO / NETWORKING / BREAKFAST**

8:00 — **WELCOME REMARKS** Conference Committee, led by Neil Fuenmayor, *LyondellBasell (Retired)*

8:45 — **KEYNOTE**
Navigating Uncertainties in Global PP - Overcapacity, Demographic Shifts, and Tariffs
Ramesh Iyer, *Director of Polymers, Independent Commodity Intelligence Services (ICIS)*

9:30 — **PANEL DISCUSSION**
Trends, Innovations and Opportunities in Automotive Exteriors PANELISTS: Jess Coulter, *Honda;* Harsh Modi, *Tesla;* Kevin Vine, *General Motors;* Arivoli Ramanujam, *Rivian;* Rob Mimms, *Advanced Composites*
MODERATORS: Mark Lapain, *Advanced Composites;* Mark Jablonka, *Dow*

10:30 — **NETWORKING BREAK** *SPONSORED BY* ***SPE DETROIT SECTION***

	HALL I	HALL II	HALL III
	MATERIALS DEVELOPMENT *Dr. Bin Sun, SABIC* *Dr. Birat KC, Magna International* *John Walling, LyondellBasell*	**POLYOLEFIN ELASTOMERS & VULCANIZATES** *Dr. Bhavesh Shah, Lion Elastomers* *Dr. Dave Patel, GuruTech Systems, Inc* *Dr. Nadeem Bokhari, Sumitomo Chemical Group*	**EXTERIOR TRIM & STRUCTURAL APPLICATIONS** *Mark Pilette, Magna (Retired)* *Charlie Yang, LyondellBasell* *Kevin DeGrood, Borealis*
10:45	***Lightweight/High-Transmittance Low-CLTE Polyolefin Materials*** Jason Li, *Kingfa*	***Santoprene TPV for Automotive Dynamic Seals*** Paul Nguyen, *Celanese Corporation*	***Launching TPO Materials with Recycle Content for Various Automotive Applications*** David Choi, *LyondellBasell*
11:15	***Polypropylene Reinforced Composites for Aesthetical and Structural Application*** Tariq Syed, *SABIC*	***Lower CO_2 Emission of Self Lubricated Low Coefficient of Friction TPV for Corner Molding Applications*** Serif Erdogan, *Elastron*	***Engineered Resin Replacement for Crash Absorbers*** Kevin DeGrood / Tobias Epple, *Borealis*
11:45	***New Flame Retardant PP for Battery Enclosure Materials by Using Long Glass Fiber Reinforced PP*** Rich Tuttle & Takumi Onai, *Japan Polypropylene Corporation (JPP)*	***TEFABLOC QE Series for Automotive Interior Application with Excellent Superior Fluidity, Anti-Abrasion, and Chemical Resistance Properties*** Yuma Kinoshita, *Mitsubishi Chemical America*	***Next Generation Low-CLTE TPOs for Body Panel Applications*** Tomik Mouradian, *LyondellBasell*

PM 12:15 — **NETWORKING LUNCH** *SPONSORED BY* ***SPE DETROIT SECTION***

	SUSTAINABILITY *Dr. Petya Yaneva / Sunil Earath, SABIC* *Dr. Murali Reddy, CCC Plastics* *Dr. Sharad Thakkar, Niche Polymer*	**PERFORMANCE ADDITIVES & COLORANTS** *Dr. John Mara, Amfine* *Heejung Kwon, SONGWON* *Josh Cram, Continental Surface Solutions*	**INNOVATIONS IN INTERIORS** *Austin Wagenhals, Ford Motor Co.* *Dr. Raziyeh Mohammadi, Ford Motor Co.* *Isabel Newton, Hyundia-Kia America Technical Center, Inc.*
1:30	***Enabling Traceble Sustainability in Automotive Supply Chains with ISCC PLUS*** Carlos Merida, *ISCC Plus*	***PFAS-free GF-PP and Highly Filled FR PP*** Jonathon McLachlan, *BYK*	***Manufacturing Process Developments to Ensure Olefin Circularity in Interiors*** Mark Wolfe and Chris Davis, *Inteva*
2:00	***Walking the Line: Scaling TPO Recovery Without Compromising Quality in a Shifting Global Market*** Hayden Latham, *Padnos*	***Advanced Flame Retardants for Polyolefins: Addressing Environmental & Safety Challenges*** Yuno Koichi, *ADEKA Corporation*	***Sustainable Automotive Seating Materials*** Dr. Xi Chen, *Dow*; Amanda Pucher, *Lear*
2:30	***Vision for Sustainable Mobility Through Innovative TPO Materials and Ecosystems*** Mark Allen & Mark Jablonka, *Dow*	***Flame Retarded Compounds for Thermal Runaway Events in Electric Vehicles*** Ritch Koeth, *LyondellBasell*	***Sustainable Light Weight Solutions for Interior Applications in Talc filled and Impact Modified TPOs*** Luca Gazzola, *Sirmax*

3:00 — **NETWORKING BREAK** *SPONSORED BY* ***SIRMAX***

	MATERIALS DEVELOPMENT *Dr. Bin Sun, SABIC* *Dr. Birat KC, Magna International* *John Walling, LyondellBasell*	**PERFORMANCE ADDITIVES & COLORANTS** *Dr. John Mara, Amfine* *Heejung Kwon, SONGWON* *Josh Cram, Continental Surface Solutions*	**PROCESS ENABLING & ADDITIVE MANUFACTURING** *Rohan Repale, Harman International* *Paul Sieradzki, Toray Plastics (America)* *Suresh Shah, Emeritus*
3:15	***The Material Difference of Thermoplastic in Enabling Electric Mobility*** Anil Tiwari, *SABIC*	***Navigating the Flame-Retardant Synergist Market: Challenges and Formulation Strategies for Low and ATO-Free Polyolefin Compounds*** Kim Kern, *ICL, Inc.*	***Material-Process-Microstructure Property Relationships of Fiber Reinforced TPO Composites Fabricated via Thermoforming*** Amit M. Deshpande, *University of Delaware*
3:45	***TALC: ECO_2 Modifier for Sustainable Automotive TPOs*** Piero Ercoli, *ImiFabi*	***Innovations, Regulations, and Market Dynamics Regarding Flame Retardant Additives*** Maggie Baumann & Shannon Gainey, *Performance Polymers and Additives/Pinfa NA, Huber*	***Processing Behavior of Recycled Thermoplastics: Process-Induced Changes in Microstructure*** Paula Hohoff, *University of Wisconsin*
4:15	***New HAR Mineral Solution for Automotive Applications*** Maziyar Bolourchi, *Imerys*	***Light Stabilization for Automotive Applications: a Strategic Approach Geared Toward Sustainability*** Heejung Kwon, *SONGWON*	***Smart Simulation of Low Constant Pressure Molding Using Virtual Sensors*** Alex Baker, *Moldex3D*
4:45	***Ultra High Flow Polypropylene Material Development*** Sassan Tarahomi, *Mid Michigan Plastics*	***Achieving Optimal Color Performance with Sustainable Carbonaceous Material*** Jun Tian, *Birla Carbon*	***Advances in Lightweighting Validation, Correlating Foaming Agents and CAD Simulation to Molded Automotive Components*** Scott Weber and Zachary Alderman, *Avient*

5:15 — **CONFERENCE ADJOURNS FOR THE DAY**

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5:30 — **EVENING RECEPTION** *SPONSORED BY* ***ADVANCED COMPOSITES***

2025 AGENDA WEDNESDAY 10 | 1

All Times Shown in EDT USA (UTC - 04:00)

AM 7:00 **REGISTRATION / EXPO / NETWORKING / BREAKFAST**

8:00 **CHAIR WELCOME REMARKS** Rob Philp, *Sirmax;* Neil Fuenmayor, *LyondellBasell (Retired);* Mike Balow, *Auxin Consulting, LLC*

	HALL I	HALL II	HALL III
	PROCESS ENABLING & ADDITIVE MANUFACTURING	**SUSTAINABILITY**	**PERFORMANCE ADDITIVES & COLORANTS**
	Rohan Repale, Harman International Paul Sieradzki, Toray Plastics (America) Suresh Shah, Emeritus	*Dr. Petya Yaneva / Sunil Earath, SABIC Dr. Murali Reddy, CCC Plastics Dr. Sharad Thakkar, Niche Polymer*	*Dr. John Mara, Amfine Heejung Kwon, SONGWON Josh Cram, Continental Surface Solutions*
8:15	***Ultra High Flow Polypropylene for Processing Challenging Applications*** Sassan Tarahomi, *Mid Michigan Plastics*	***New Sustainable Solutions for Thermal Management in Electrical Vehicles*** Nicolas Schlutig, *Sumika Polymers Compounds Europe*	***UV Stabilizers Solution for Automotive TPO. A 360-degree Approach in Product Selection*** Enrico Galfrè, *SABO*
8:45	***NPP Lattices to Enhance Formability of Cellulose PP Nonwovens*** Meghana Kamble, *Weav3d*	***Aesthetics of PIR/PCR Compounds*** Kevin DeGrood, *Borealis*	***Novel Clarifier for Transparent/Translucent PP Based Automotive Materials*** Daniel Turley, *Amfine Chemical*
9:15	***Enhancing Circular Design in Automotive: From Concept to End-of-Life Vehicles*** Brian Stefanik, *Kraton Polymers*	***In the Car with PCR: Overcoming the Hurdles of Polypropylene Recycling*** David Nix, *Green Group Consulting*	***Ionic Additive for Improved Performance of Filled Polyolefins*** Eric Evelhoch, *Resin Solutions*
9:45	NETWORKING BREAK *SPONSORED BY* ***SPE DETROIT SECTION***		
	POLYOLEFIN ELASTOMERS AND VULCANIZATES	**SUSTAINABILITY**	**INNOVATIONS IN INTERIORS**
	Dr. Bhavesh Shah, Lion Elastomers Dr. Dave Patel, GuruTech Systems, Inc Dr. Nadeem Bokhari, Sumitomo Chemical Group	*Dr. Petya Yaneva / Sunil Earath, SABIC Dr. Murali Reddy, CCC Plastics Dr. Sharad Thakkar, Niche Polymer*	*Austin Wagenhals, Ford Motor Co. Dr. Raziyeh Mohammadi, Ford Motor Co. Isabel Newton, Hyundia-Kia America Technical Center, Inc.*
10:00	***Advanced TPE Materials for Airbag Cover Applications*** Katuya Kida, *Sumitomo Chemical Co., Japan*	***An Additive System for Superior Long-Term Heat Aging in Recycled Polypropylene for Automotive Applications*** Michail Dolgovskij, *SI Group*	***Elevating the In-Car Experience with Backlit Surfaces*** David Gomez, *Antolin*
10:30	***TPO Compounds for Enhanced Aesthetics*** Shady Aboud, *Advanced Composites*	***Bringing Thermoplastic Elastomer (TPE) Manufacturing to the Next Level*** TBD, *ReNeuvo Composites*	***Decorative and Functional Surface Printing of TPO Interiors*** Jeremy Husic, *Inteva*
11:00	***The Evolution of Bumper Fascia Materials: Paintable TPOs*** Dan Jones and Antonio Ortiz, *GEON*	***Innovative SEBS for Improving the Key Properties of TPEs*** Kazuhisa Takagi, *Asahi Kasei*	***High Performance Thermoplastic Hot Melt Adhesive for Polar Substrates*** Dr. Annie Moorhead, *HB Fuller*
11:30	NETWORKING LUNCH *SPONSORED BY* ***SPE DETROIT SECTION***		

PM 12:45 **KEYNOTE** ***Driving Change: Strategic Perspectives on the Chemical Supply Chain for TPO***
Jan Kalfus PhD., *Executive Director Chemicals, S&P Global Commodity Insights*

1:30 **STUDENT FOCUS**
1:30PM - 1:40PM Fletcher Daniels - Founder & CEO of TEACH.ED - Educator Talk
1:40PM - 1:50PM Paul Garrison Jr. - Ecotek Lab Student - "Genius Talk"
1:50PM - 2:00PM 2025 Ecotek Lab Poster Competition Awards

2:00 **KEYNOTE** ***Sustainability and Circular Vehicle Strategy at Volkswagen Group Innovation,***
Dr. Hendrik Mainka, *Principal Program Lead, Volkswagen Group of America, Inc.*

2:45 **PANEL DISCUSSION** ***Automotive Interiors – Innovations, Industry Challenges, and Sustainability***
PANELISTS: James Bellow, *General Motors;* Mahesh Bhattacharyya, *Ford Motor Company;* Allison Collins, *Ford Motor Company;* Craig Karamanian, *The Haartz Corporation;* Mark Wolfe, *Inteva Products, LLC;* Mark Allen, *Dow;* Mike Dammann, *LyondellBasell*
MODERATORS: Austin Wagenhals, *Ford Motor Company;* Dr. Raziyeh Mohammadi, *Ford Motor Company;* Isabel Newton, *Hyundai-Kia America Technical Center, Inc.*

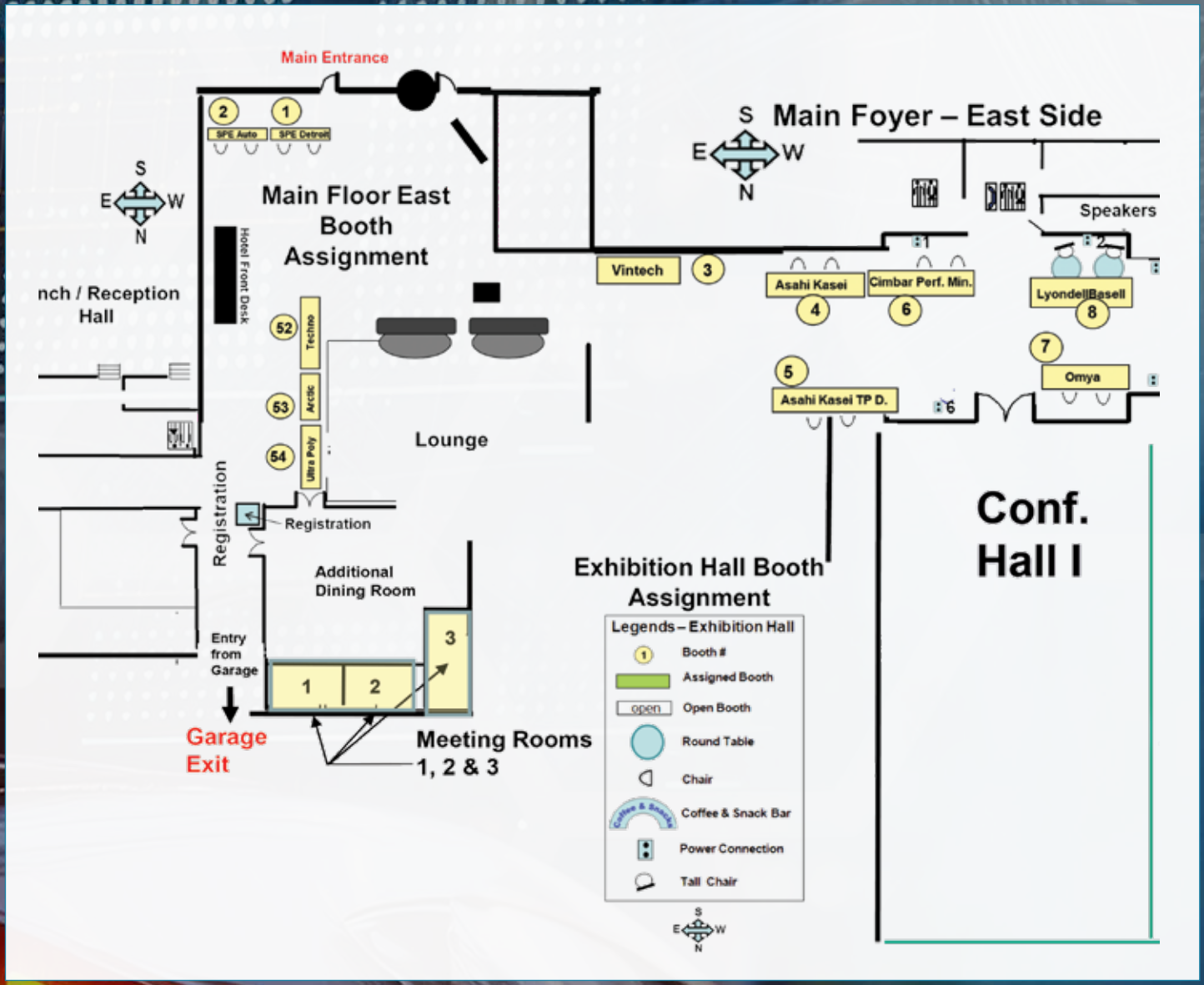
3:45 NETWORKING BREAK *SPONSORED BY* ***SPE DETROIT SECTION***

	PERFORMANCE ADDITIVES & COLORANTS	**MATERIALS DEVELOPMENT**	**INNOVATIONS IN INTERIORS**
	Dr. John Mara, Amfine Heejung Kwon, SONGWON Josh Cram, Continental Surface Solutions	*Dr. Bin Sun, SABIC Dr. Birat KC, Magna International John Walling, LyondellBasell*	*Austin Wagenhals, Ford Motor Co. Dr. Raziyeh Mohammadi, Ford Motor Co. Isabel Newton, Hyundai-Kia America Technical Center, Inc.*
4:00	***Enabling New Polyolefin Applications in Automotive: Enhancing Durability of PCR and Translucent PP*** Xiaofeng (Chris) Ren, *Syensqo*	***Aesthetics Short Glass Fibre Reinforced Polypropylene Solutions for Interiors and Exteriors Applications*** Nicolas Schlutig, *Sumika*	***Beyond Black: Sustainable & Decorative TPEs Illuminating Automotive Possibilities*** Stephanie O'Kon, *Kraiburg TPE*
4:30	***Sustainable Post Consumer Recycled Polypropylene for Class A Automotive Applications*** Susan Blackson, *PureCycle*	***Novel Black Masterbatch Solutions for Automotive PP Compounds Subjected to Prolonged Heat Exposure*** Jodi Bates, *Cabot*	***OPEN***

5:00 **CONFERENCE ADJOURNS**

REV.7

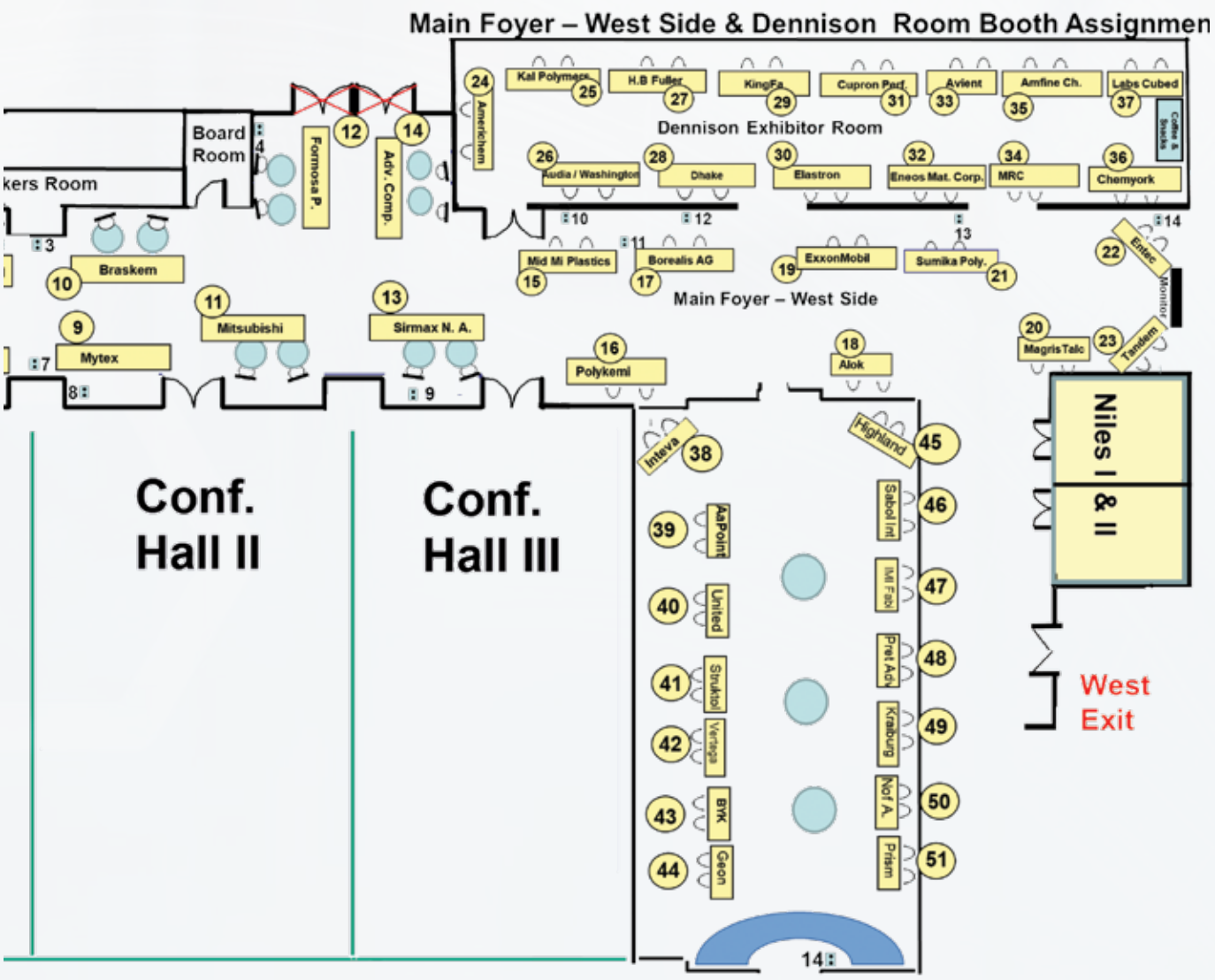
2025 EXHIBITOR LOCATIONS



2025 EXHIBITORS ALPHABETICALLY

Company	Type of Sponsor	Booth
Advanced Composites	Reception Sponsor Platinum	14
Alok Masterbatches	Exhibitor	18
Americhem	Exhibitor	24
Amfine Chemical	Gold	35
Applus DatapointLabs	Exhibitor	39
Arctic Minerals	Exhibitor	53
Asahii Kaseii TPhlaesrtmicsoplastic	Gold	4
Elastomer Div	Gold	5
Audia_Washington Penn	Gold	26
Avient Corporation	Gold	33
Borealis	Tote Bag Sponsor Gold	17
Braskem	Gold	10
BYK	Gold	43
Chemyork Inc	Exhibitor	36
Cimbar Performance Minerals	Gold	6
Cupron Performance Additives	Gold	31
Dhake	Exhibitor	28
Dow	Gold	N/A
Elastron	Exhibitor	30
Eneos Materials Corporation	Exhibitor	32
Entec Polymers	Exhibitor	22
ExxonMobil	Gold	19
Formosa Plastics	Reception Sponsor Platinum	12
Geon Performance Solutions	Gold	44
HB Fuller	Gold	27
Highland Plastics	Exhibitor	45
IMI Fabi LLC	Exhibitor	47
Inteva Products	Gold	38
Kal-Polymer	Exhibitor	25

2025 EXHIBITOR LOCATIONS



2025 EXHIBITORS ALPHABETICALLY

Kingfa Sci. & Tech.(USA), Inc		Gold	29
KRAIBURG-TPE		Exhibitor	49
LabsCubed		Exhibitor	37
LyondellBasell	**Event Recordings Sponsor**	**Gold+Back Cvr**	**8**
M Holland	Notebook, Pen& Pencil Sponsor		N/A
Magris Talc		Gold	20
Mid Michigan Plastics		Gold	15
Mitsubishi Chemical Group		Gold	11
MRC Polymers		Gold	34
Mytex Polymers		Exhibitor	9
NOF America Corporation		Exhibitor	50
Omya Performance Polymers		Gold	7
Polykemi Group		Gold	16
PRET Advanced Materials		Gold	48
Prism Worldwide		Exhibitor	51
Sabo International Americas Inc		Exhibitor	46
Sirmax North America, Inc	**AM Monday Break**	**Gold**	**13**
Spartan Polymer		Lanyard Sponsor	N/A
SPE Automotive Division		Sponsor	2
SPE Detroit Host		Sponsor	1
Struktol Company of America		Exhibitor	41
Sumika Polymers		Gold	21
Tandem Recycling/Post Plastics		Exhibitor	23
Techno-UMG		Exhibitor	52
Ultra-Poly Corporation		Exhibitor	54
United Paint & Chemical Corp.		Exhibitor	40
Vartega		Exhibitor	42
VINTECH		Exhibitor	3

2025 SPONSORS

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TPO® 2025 KEYNOTE

TUESDAY 10 | 1 8:45-9:15AM

TPO® 2025
GLOBAL AUTOMOTIVE CONFERENCE
Troy, MI USA • Sept 29-Oct 1, 2025
Powered by SPE Detroit Section

WWW. AUTO-TPO.COM

Navigating Uncertainties in Global PP - Overcapacity, Demographic Shifts, and Tariffs

In his keynote, Ramesh Iyer will provide an overview of the global situation while mainly focusing on the North American market.

The presentation will discuss multiple topics such as:
- Capacity additions and removals
- Demand forecast based on demographic shifts
- Impact of changing tariff policies

Ramesh will also discuss upstream chemicals such as propane and propylene.

RAMESH IYER
Director of Polymers

I·C·I·S
Independent Commodity Intelligence Services

RAMESH IYER is an accomplished Senior Executive with extensive experience developing growth strategies, innovating products, and driving profitable growth in the plastics industry. Ramesh is currently Consultant/ Analyst at Chemical Data - ICIS. He is the Director of Polymers and covers polypropylene, nylons and polycarbonates.

TPO® 2025 KEYNOTE

TPO® 2025
GLOBAL AUTOMOTIVE CONFERENCE
Troy, MI USA • Sept 29-Oct 1, 2025
Powered by SPE Detroit Section

WEDNESDAY 10 | 1 12:45-1:30PM

WWW. AUTO-TPO.COM

Driving Change: Strategic Perspectives on the Chemical Supply Chain for TPO

S&P Global CI will provide a thorough analysis of the chemical industry's current state and future trends as a key supplier to the TPO sector. We will highlight the challenges and opportunities that lie ahead, addressing key questions such as:

- **Shifting Market Dynamics:** *How is China's emerging role reshaping the industry landscape?*
- **Market Cycles vs. Structural Changes:** *What are the implications for supply security?*
- **US Manufacturing Competitiveness:** *What factors enhance the competitiveness of US manufacturing in this sector?*
- **What's Next in Technology:** *What innovations are on the horizon that could transform operations?*
- **Profitable Sustainability**

This overview will equip key TPO stakeholders with insights necessary to navigate the complexities of the upstream raw material supply sector and understand the transformative changes occurring within the chemical industry.

JAN KALFUS, PhD.
Executive Director Chemicals
S&P Global

JAN KALFUS has over 15 years of experience in Chemicals, Refining, Bio-Renewables, and Low-Carbon Solutions. Previously, he led the Global Energy & Feedstocks, Chemical Technology Organization, and US Tech Center at Braskem. Before joining Braskem, he worked in various business and technology roles at ExxonMobil. Early in his career, Jan designed new PP impact copolymers and olefin-based plastomers for TPO applications in automotive and roofing.

TPO® 2025 KEYNOTE

TPO® 2025
GLOBAL AUTOMOTIVE CONFERENCE
Troy, MI USA • Sept 29-Oct 1, 2025
Powered by SPE Detroit Section

WEDNESDAY 10 | 1 2:00-2:45PM

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Sustainability and Circular Vehicle Strategy at Volkswagen Group Innovation

DR. HENDRIK MAINKA
Principal Program Lead
VOLKSWAGEN
GROUP OF AMERICA

Volkswagen Group is advancing a circular vehicle strategy that combines ambitious sustainability targets with sustainable material solutions. Dr. Mainka provides a high-level overview of the Volkswagen Group Innovation approach, highlighting how recycled and circular materials are already impacting production and shaping the future of sustainable mobility.

DR. HENDRIK MAINKA is Managing Director of the Volkswagen Group Innovation Hub Knoxville at Volkswagen Group of America and leads the Product Innovation Team with work in the areas of sustainable and bio-based materials, recycling and circular economy, electro mobility and additive manufacturing.

After several years of working for Volkswagen AG in the Materials and Manufacturing Processes Department at Volkswagen Group Research, focusing on automotive light weighting and alternative fiber reinforcements, Dr. Mainka worked for Volkswagen Group of America since 2015. He is also cluster lead for Sustainability and Materials in Volkswagen's North American Region and co-leader of Volkswagen's worldwide sustainability program: Go.Sub-Zero.

Dr. Hendrik Mainka is an accomplished author and an Adjunct Professor at Baylor University.

2025 PANEL DISCUSSIONS

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GLOBAL AUTOMOTIVE CONFERENCE
Metro Detroit, MI • Sept 29-Oct 1, 2025
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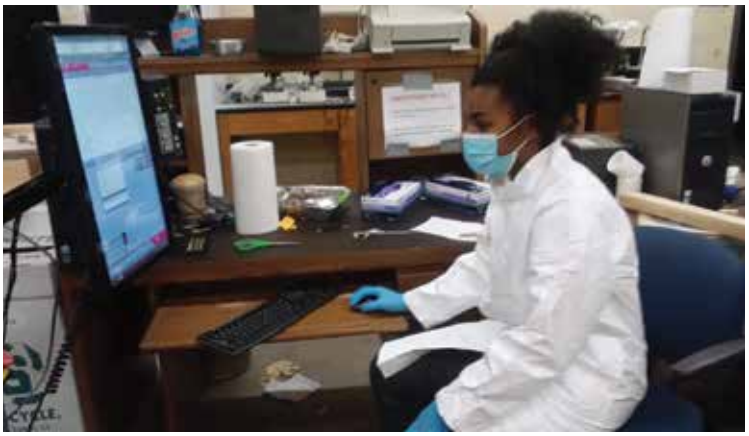
2025 SPE TPO STUDENT POSTER COMPETITION

SUPPORTING SCIENTISTS OF TOMORROW

Students from **Ecotek Lab** - a Detroit-based research and innovation organization dedicated to supporting the scientists of tomorrow - will present their plastic research projects in a **Technical Project Poster Competition** at the **2025 SPE TPO Global Automotive Conference.** We are expecting 30+ students from Ecotek Lab to join us at our conference, with many students showcasing their material projects in the competition. These young scientists are academically gifted middle and high school students who participate in international science research ventures.

Ecotek Lab, based in TechTown Detroit helps children develop and nurture scientific and critical thinking skills. Founded in Detroit in 2005 by **Keith Young**, Ecotek Lab reaches over 4,000 Michigan kids annually, preparing them for leadership roles. Today, Ecotek Lab has grown outside of Michigan, to also include Florida and Maryland, and true to its motto ***- Science at Work -*** has enabled 15 start-up companies with some former students in leadership positions.



TUESDAY, SEPTEMBER 30
8:00AM - 5:15PM
POSTERS DISPLAYED IN HALLWAYS

WEDNESDAY, OCTOBER 1
8:00AM - 4:00PM
POSTERS DISPLAYED IN NILES I & II

10:30AM - 11:30AM
COMMITTEE JUDGING - NILES I & II

1:30PM - 2:00PM
AWARD WINNERS ANNOUNCED - HALLS I-II-III

Keith Young, Founder, CEO Ecotek Lab

AWARDS
1ST PLACE $1,000 | 2ND PLACE $750
3RD PLACE $500 | ATTENDEE CHOICE $500

Ecotek Lab: Keith Young at ecoteklab@gmail.com

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DETROIT SECTION

2025-2026
Scholarship Recipient Recognition
During tonight's reception

Future Leaders Recipient: $6,500

(In honor of Pete Grelle)

Ahmad Hasan, MSU Grad Student
Mechanical Engineering

Person to Watch Recipient: $6,000

(In honor of Sandra McClelland)

Carly Baier, Kettering University Senior
Chemical Engineering

Reginald Bell Recipient: $5,000

Janice James, Kettering Univ Junior
Chemical Engineering

Delta Polymers Recipient: $4,200

Arinc Kuloglu, MSU Grad Student
Mechanical Engineering

MATERIALS DEVELOPMENT

SESSION CO-CHAIRS: Dr. Bin Sun, *SABIC*
Dr. Birat KC, *Magna International* | **John Walling,** *LyondellBasell*



Lightweight/High-Transmittance Low-CLTE Polyolefin Materials

Jason Li, *Kingfa*

Under the general trend of automobile electrification, the realization of complete and customized interactive design will bring about material changes and innovations; full-plastic exterior materials have developed from metal materials to thermosetting plastics, and will eventually goes into full-plastics; full-plastic exterior materials have improved module integration, reduced the number of parts, and provided new design possibilities; lightweight exteriors enable "long-range" EVs, and high-transmittance exteriors give EVs "smart language" and "digital life".

Based on changes in the external market, Kingfa Technology is currently focusing on the development of lightweight low-CLTE materials to achieve upgrades of plastics to metal. In the future, we will focus on high-transmittance low-CLTE materials and lay out the next generation of smart exterior materials.

Polypropylene Reinforced Composites for Aesthetical and Structural Application

Tariq Syed, *SABIC*

This presentation explores the use of polypropylene (PP) composites in automotive applications, focusing on how reinforcements – fibrous fillers like glass fibers – can deliver enhanced structural strength and aesthetics. It highlights the role of high-aspect-ratio fillers, either chopped or continuous, in optimizing performance and cost. Attendees will gain insights into selecting and designing with PP composites to meet demanding structural and visual requirements in automotive components.


New Flame Retardant PP for Battery Enclosure Materials by Using Long Glass Fiber Reinforced PP

Rich Tuttle & Takumi Onai,
Japan Polypropylene Corporation (JPP)

With increasing battery capacity of EVs, materials used in battery enclosure parts have been required to improve fire resistance to reduce the risk of thermal runaway. The new fireproofed LGFPP we developed by the original technology can replace other materials because of lightweight, high flowability, excellent rigidity and impact balance and safety (nontoxic). It has already passed Battery Enclosure Thermal Runaway test and can withstand the 7 cycle times Torch and Grit test of UL2596.

The Material Difference of Thermoplastic in Enabling Electric Mobility

Anil Tiwari, *SABIC*

This presentation focuses on the opportunities that thermoplastics can present to help improve the safety, reduce the weight and cost, and enhance the sustainability of EV battery packs in all phases of a life cycle that includes manufacturing, use-phase and end of life. This can be achieved by incorporating flame retardant (FR) thermoplastics in various pack components. These materials inherently act as insulators for both heat and electricity, presenting substantial opportunities for improved system performance, lightweighting and seamless part integration. Two case studies speak to these potential benefits of thermoplastics, with one focusing on use of unique intumescent FR materials as a potential solution for enhanced fire safety; and a second, a thermoplastic intensive pack, demonstrating the potential to achieve significant part integration, weight and cost savings, and improved system performance.

MATERIALS DEVELOPMENT

SESSION CO-CHAIRS: Dr. Bin Sun, *SABIC*
Dr. Birat KC, *Magna International* | **John Walling,** *LyondellBasell*



TALC: ECO_2 Modifier for Sustainable Automotive TPOs

Piero Ercoli, *ImiFabi*

As the automotive industry moves towards electrification and sustainability, lightweight materials like high-performance talc modifiers play a crucial role. IMI Fabi talc products enhance TPOs, fulfilling demands for efficiency, range, and eco-friendliness in electric vehicles. This paper highlights the ECO2 contribution of IMI Fabi's latest products, showcasing their ability to meet stringent automotive requirements while supporting sustainability and cost-effectiveness.

New HAR Mineral Solution for Automotive Applications

Maziyar Bolourchi, *Imerys*

Imerys is introducing a new high aspect ratio mineral solution designed for a range of automotive applications including improved lightweighting, dimensional stability and flame retardancy (synergist). Presentation will showcase common critical to quality attributes including lightweighting, stiffness/impact balance, dimensional stability and flame retardancy in olefins, nylon and other engineering thermoplastics.

Ultra High Flow Polypropylene Material Development

Sassan Tarahomi,
Mid Michigan Plastics

Ultra high flow homo polymer or co-polymer PP resins are high flow rate polypropylene resins that quickly melt to low viscosity Newtonian fluids. These polymers are compatible with TPE's and TPV's and often used to enhance the processing aspect of the main polymer yet avoiding any reduction in the base polymer properties. Another unique material characteristic is the ability to act as a nucleating agent for crystalized PET resin.

Aesthetics Short Glass Fibre Reinforced Polypropylene Solutions for Interiors and Exteriors Applications

Nicolas Schlutig, *Sumika*

Today, lightweighting and cost saving is still a key driver in automotive sector. This presentation will showcase several solutions provided by Sumika Polymer Compounds to achieve aesthetics parts for different group in automotive industry. Further technical solutions using Short Glass Fibre Reinforced Polypropylene (SFGPP) will be deeply explained targeting exteriors's & interior's high class aesthetics automotive parts.

Novel Black Masterbatch Solutions for Automotive PP Compounds Subjected to Prolonged Heat Exposure

Jodi Bates, *Cabot*

Polypropylene compounds with enhanced long-term heat stability are increasingly critical thanks to growing adoption of electric vehicles. Novel black masterbatch formulations, utilizing highly engineered, advanced carbon black additives, enable PP compound developments to withstand prolonged thermal exposure (e.g., 150 °C for >1,000 h per VW44045) without embrittlement or odor issues. Our data demonstrate that these materials meet stringent automotive requirements for interior and under-the-hood applications, while complying with all other typical performance requirements, and maintaining commercial viability.

Innovative SEBS for Improving the Key Properties of TPEs

Kazuhisa Takagi, *Asahi Kasei*

Asahi Kasei is a world leading supplier of innovative hydrogenated styrenic thermoplastic elastomers, SEBS. In this session, we will introduce unique SEBS grades suitable for obtaining soft touch surface, abrasion resistance, and vibration damping properties which are required for automotive interior parts. Our newly developed SEBS for automobile interior materials is more applicable to a wide range of molding designs than conventional SEBS.

2025 SPE-TPO Global Automotive Conference

2025 Scholarship Finalists

Reza Bahrami
Texas A&M University

Marziyeh Shabani
University of Akron

MONI MAHESH GHOSH
University of Akron

ARSHIYA BHADU
Penn State University

PERFORMANCE ADDITIVES & COLORANTS

SESSION CO-CHAIRS: Dr. John Mara, *Amfine*
Heejung Kwon, *SONGWON* | Josh Cram, *Continental Surface Solutions*

Advanced Flame Retardants for Polyolefins: Addressing Environmental & Safety Challenges

Yuno Koichi, *ADEKA Corporation*

Brominated flame retardants (BrFR) which are one of the major flame retardants used for polyolefins in the market, provide excellent flame retardancy but pose the challenge of generating large amounts of smoke and toxic gases during combustion. Recently, concerns have also been raised about the environmental and health hazards of antimony used as a synergist in BrFR. In addition, the supply stability of antimony is also a concern.

Phosphorus-based intumescent flame retardants (IFR) form a hard shield called "char" on the surface of the substrate, which provides excellent flame retardancy while producing fewer toxic gases. Particularly, the ADK STAB FP-2000 series has superior thermal stability during processing compared to conventional IFRs and is suitable for applications requiring high flame retardancy (UL-94V V-0 or 5VA), such as glass fiber reinforced polypropylene compounds (GF-FR-PP). In particular, FP-2700S can reduce the loading amount of FR in GF-FR-PP compared to existing products.

This presentation will introduce solutions to pass UL-94V 5VA, V-0 and V-2 for various applications without using BrFR/antimony.

PFAS-free GF-PP and Highly Filled FR PP

Jonathon McLachlan, *BYK*

BYK has developed and commercialized a pair of additives aimed at improving PFAS-free polymer processing in a variety of substances with other lab investigations ongoing. Several case studies for the modification of GF PP, highly-filled FR PP, and others are discussed with a specific interest in rheology modification.

Flame Retarded Compounds for Thermal Runaway Events in Electric Vehicles

Ritch Koeth, *LyondellBasell*

Many flame-retardant materials can achieve a UL 94 V-0 or even 5V ratings; however, few of these materials can withstand the increasingly harsh standards required in EV battery systems necessary to provide occupant safety in modern electric vehicles in case of a thermal runaway event of the battery system. A new approach to flame retardancy was studied in a variety of flame-retardant polymer compounds using a high energy torch set up. The torch set up was designed to closely mimic the conditions of the Torch and Grit test outlined under UL 2596. This method studied barrier flame retardancy properties by testing and monitoring the effectiveness of the flame-retardant compound to prevent breakthrough of a high-powered flame, as well as the ability for a material to minimize heat transfer through the test plaque itself. The time for flame breakthrough and the temperature at which the breakthrough occurred was studied for each material. The time to reach 260C was also studied as this is the temperature at which the battery system itself would fail due to thermal runaway. Testing was performed on a variety of materials at different thicknesses to compare the effectiveness of different polymers and flame-retardant systems to better understand the advantages and disadvantages of each. Using this method can allow for quicker design and optimization of materials and systems of materials that can be utilized for EV battery applications.

Navigating the Flame-Retardant Synergist Market: Challenges and Formulation Strategies for Low and ATO-Free Polyolefin Compounds

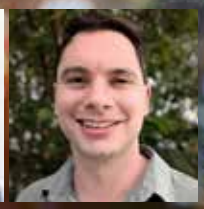
Kim Kern, *ICL, Inc.*

The global ATO market is facing significant challenges, including supply disruptions, price volatility, and regulatory challenges. This presentation will explore the implications of these challenges for the automotive sector, particularly compounds that traditionally rely on ATO. We will examine current industry best practices and highlight emerging formulation strategies that minimize ATO usage, including the development of low-ATO and ATO-free solutions. Additionally, alternatives to traditional flame retardants such as DBDPE will be discussed, focusing on their potential for reducing environmental and health impacts while maintaining performance. The presentation will cover a broad range of formulations, addressing the unique considerations for each used in automotive applications.

PERFORMANCE ADDITIVES & COLORANTS

SESSION CO-CHAIRS: Dr. John Mara, *Amfine*
Heejung Kwon, *SONGWON* | Josh Cram, *Continental Surface Solutions*





Innovations, Regulations, and Market Dynamics Regarding Flame Retardant Additives

Maggie Baumann & Shannon Gainey, *Performance Polymers and Additives/ Pinfa NA, Huber*

Flame retardant additives play a crucial role in enhancing the safety and performance of materials used in various industries. It is preferred for the additives to not only be effective, but also safe (non-toxic). This presentation will delve into the latest advancements in flame retardant additives, focusing on the technological innovations that have led to more efficient and environmentally friendly solutions.

We will explore the evolving regulatory landscape, highlighting recent developments that impact the formulation and application of these additives to the targeted materials. Additionally, the presentation will address emerging market needs, driven by increased safety standards and demand for sustainable products. Attendees will gain insights into the challenges and opportunities within the flame retardant additives sector, equipping them with the knowledge to navigate this dynamic field for their companies and as consumers.

Light Stabilization for Automotive Applications: a Strategic Approach Geared Toward Sustainability

Heejung Kwon, *SONGWON*

Stabilization of polypropylene/thermoplastic olefins (PP/TPO) for automotive applications is essential to achieve the technical performance required of properties such as long-term heat and light stability. The variety of stabilizer products is commercially available, but also official regulations and the incentive for improved sustainability can make the selection of appropriate products a challenge for some users.

In this paper, light stabilization of PP/TPO is presented in relation to market needs, including those driven by the demand for a sustainable future.

UV Stabilizers Solution for Automotive TPO. A 360-degree Approach in Product Selection

Enrico Galfrè, *SABO*

UV Stabilizers selection has always been a matter of performance and economic assessment. Today, sustainability is getting as relevant as the previous criteria.

SABO, as a global player in the production of Light Stabilizers, carried out a deep Product Carbon Footprint assessment on well-known stabilizers for TPO. Results are presented to show how such additives' class can enhance plastic materials' environment footprint and how products' selection is moving to new paradigms.

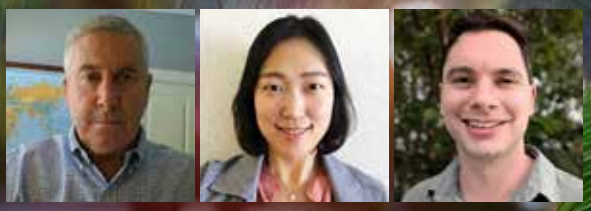
Achieving Optimal Color Performance with Sustainable Carbonaceous Material

Jun Tian, *Birla Carbon*

Carbonaceous materials derived from end-of-life tires present a sustainable alternative to traditional furnace carbon black for plastic applications. These materials function as pigments, offering medium color performance, and can be blended with premium carbon blacks to elevate the color performance for automotive and other demanding applications. This presentation examines the color performance of an industry-scale sustainable carbonaceous material (SCM), its blends with a high-color black in a polypropylene resin system, and the sustainability benefits SCM can contribute to automotive applications.

PERFORMANCE ADDITIVES & COLORANTS

SESSION CO-CHAIRS: Dr. John Mara, *Amfine*
Heejung Kwon, *SONGWON* | Josh Cram, *Continental Surface Solutions*



Novel Clarifier for Transparent/Translucent PP Based Automotive Materials

Daniel Turley, *Amfine Chemical*

In recent years, the development of transparent/translucent TPO materials for automotive components such as bumpers for electric vehicles, which have a high degree of freedom in design and aesthetics, has been progressing globally. These materials are not only required to have high transparency and total light transmittance, but depending on the component, high mechanical properties are required to meet automotive standards. ADEKA/AMFINE has developed an innovative clarifier that dramatically enhances the transparency of polypropylene through advanced crystalline refinement resulting in unparalleled optical clarity. Today's presentation will introduce examples of high performance transparent/translucent TPO materials using this innovative clarifier and excellent nucleating agent. Material design that enables improvement of the total performance balance, including durability and weatherability, will be highlighted.

Ionic Additive for Improved Performance of Filled Polyolefins

Eric Evelhoch, *Resin Solutions*

Compounding polyolefin materials with various fillers and additives to achieve optimum polymer performance is challenging due to the need to balance compatibility, dispersibility, regulatory, and environmental factors. The challenge is further increased with the incorporation of recycled materials, especially when designing high performing filled olefin compounds. Dymalink 9200/9202, an ionic additive, is shown to enhance the properties of filled polyolefin compounds and allow for increased levels of recycled olefin content.

Enabling New Polyolefin Applications in Automotive: Enhancing Durability of PCR and Translucent PP

Xiaofeng (Chris) Ren, *Syensqo*

The automotive industry is constantly innovating, incorporating new materials and application designs to deliver benefits. Many challenges need resolution to enable the new materials and designs to be successful.

This presentation will delve into the significant role of advanced stabilization in ensuring the longevity, aesthetic, and mechanical properties of recycled and translucent polypropylene. These latest advancements can ensure the success of these new materials.

2025 SPONSORS

SPE DETROIT
ANNUAL GOLF OUTING

SAVE THE DATE

JUNE 16, 2026 9:00AM Shot Gun Start

CHERRY CREEK GOLF CLUB

52000 Cherry Creek Dr.
Shelby charter township, MI 48316

For more information contact Karen Rhodes-Parker at:
karen@spedetroit.com 248.244.8993 Ext. 3

www.spedetroit.com

POLYOLEFIN ELASTOMERS AND VULCANIZATES



SESSION CO-CHAIRS: Dr. Bhavesh Shah, *Lion Elastomers*
Dr. Dave Patel, *GuruTech Systems, Inc* | Dr. Nadeem Bokhari, *Sumitomo Polymers NA*

Santoprene TPV for Automotive Dynamic Seals

Paul Nguyen, *Celanese Corporation*

Santoprene TPV-based sealing systems continue to grow and offer advantages compared to conventional EPDM thermoset-based sealing systems. This presentation focusses on introduction of Celanese's new soft, foamable Santoprene grade to address the specific needs for automotive dynamic seal applications. This new grade shows excellent elastic performance in both static and dynamic testing in foamed profiles, as well as the compression set is significantly lower in comparison to other commercial grades . In dynamic testing, it shows significantly less hysteresis, making it a suitable candidate for dynamic seal applications.

Lower CO_2 Emission of Self Lubricated Low Coefficient of Friction TPV for Corner Molding Applications

Serif Erdogan, *Elastron*

This presentation introduces a newly developed EPDM/PP-based TPV featuring long-term coefficient of friction and excellent adhesion to thermoset EPDM weatherseals, optimized for corner molding in glass run channels. It offers superior mechanical properties, elastic recovery, easy processing, and weathering resistance. Designed with recycled inputs to reduce CO_2 emissions, this sustainable green TPV delivers enhanced processing and long-term performance, outperforming conventional low CoF TPVs in both adhesion and environmental impact.

TEFABLOC QE Series for Automotive Interior Application with Excellent Superior Fluidity, Anti-Abrasion, and Chemical Resistance Properties

Yuma Kinoshita,
Mitsubishi Chemical America

Tefabloc™ QE series is a thermoplastic elastomer designed for automotive interior applications such as grips, mats, armrests, and more. Thanks to its superior fluidity, anti-abrasion, and chemical resistance properties, it is ideal for these uses. In this work, we introduce the unique performance characteristics of TefablocTM QE, new requirements for automotive interior applications, and examples of successful implementations.

Advanced TPE Materials for Airbag Cover Applications

Katuya Kida, *Sumitomo Chemical Co., Japan*

Sumitomo Chemical is committed to providing technological solutions that enhance comfort and ensure optimal safety in the automotive industry by continuously developing novel materials and exploring new approaches.

We have developed innovative ESPOLEX® TPEs with excellent properties for airbag cover applications.

Enhancing Circular Design in Automotive: From Concept to End-of-Life Vehicles

Brian Stefanik, *Kraton Polymers*

End-of-life ("EOL") recyclability presents both a challenge and an opportunity for the automotive industry. By focusing on circularity, OEMs and suppliers can design innovative parts that are re-engineered for simplicity, incorporate sustainable materials, and also be reused at end of life. This presentation will explore concepts to support circular design, including maximizing the use of recycled content and bio-based materials, and improving the performance of plastics recovered from EOL vehicles.

2025 SPONSORS

INNOVATIONS IN INTERIORS

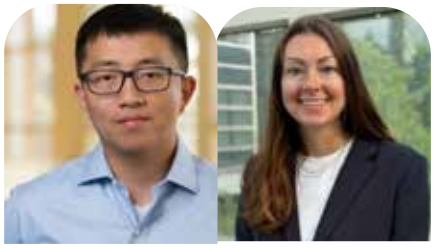
SESSION CO-CHAIRS:

Austin Wagenhals, *Ford Motor Co.*
Dr. Raziyeh Mohammadi, *Ford Motor Co.*
Isabel Newton, *Hyundai-Kia America Technical Center, Inc.*

Manufacturing Process Developments to Ensure Olefin Circularity in Interiors

Mark Wolfe and Chris Davis, *Inteva*

Olefin resins, particularly polyolefins, have become integral to the automotive industry, offering a versatile and cost-effective alternative to traditional materials creating the potential for a full circularity finished product. When the intent is to create a full olefin-based construction, design limitations, processing methods, and equipment choices become even more inter-related and dependent. The intent is to present some of the dependencies which exist if trying to produce a full olefin-based construction. By understanding the benefits and challenges associated with the use of olefin resins, adhesives, and skin materials, industry professionals can better navigate the evolving landscape of automotive materials and drive innovation in vehicle design and manufacturing.



Sustainable Automotive Seating Materials

Dr. Xi Chen, *Dow;*
Amanda Pucher, *Lear*

FlexAir™is the first 100% recyclable automotive seating solution based on extruded polyolefin 3D loop cushioning technology. Dow's INFINAIR™ polyolefin technology, a thermoplastic material designed specifically for 3D loop cushioning which does not require curing or cross-linking, enables a fully recyclable, foam-free seating solution Through the seat design and integration process, FlexAir™ enables the diversion of 2.5 billion pounds/year of seating material from landfills by using designs that focus on disassembly and recyclability. FlexAir™ meets durability, comfort, and craftsmanship standards at a price neutral offering and with enhanced sustainability.

Sustainable Light Weight Solutions for Interior Applications in Talc filled and Impact Modified TPOs

Luca Gazzola, *Sirmax*

Weight reduction in the automotive sector is a key trend, getting nowadays even more challenging considering also sustainability needs. Recycled plastics seem promising solution to combine these two trends even if there are still limitations to overcome like lower mechanical performance, reduced flowability, undesired odor and emission especially targeting vehicles' interior components. Sirmax will present in this paper how it is using its innovative expertise on plastic up-cycling to broaden recycled plastic usage while achieving light weight solution and meeting rising end-user demand. A polypropylene compound filled with 12% talc and containing 30% of recycled polypropylene is presented as a sustainable alternative that can match common requirements for interior components like door panels and a solution also for weight reduction targets while replacing highly filled prime TPOs.

Elevating the In-Car Experience with Backlit Surfaces

David Gomez, *Antolin*

Antolin explores how backlit surfaces are transforming the in-car experience by merging aesthetics, functionality, and technology. The company will provide an overview of the current status of trim surface lighting with a focus on the role of materials, surfaces and coverstocks in integrating and enhancing lighting and projections. Territory trends along with the challenges and new opportunities emerging in the auto industry will be assessed.

Antolin will present its innovation roadmap, partners ecosystem and key projects to showcase the potential of backlit technologies to create immersive, user-centric interiors. The fusion of lighting and surface technologies is transforming how the users interact and enjoy vehicle interiors.

INNOVATIONS IN INTERIORS

SESSION CO-CHAIRS:

Austin Wagenhals, *Ford Motor Co.*
Dr. Raziyeh Mohammadi, *Ford Motor Co.*
Isabel Newton, *Hyundai-Kia America Technical Center, Inc.*



Decorative and Functional Surface Printing of TPO Interiors

Jeremy Husic, *Inteva*

Automotive interiors offer surfaces that could be considered an open canvas upon which decorative designs could be inlayed and functional features could be incorporated. Colorful patterns that are viewable in daytime, or backlit at night can complement most interior themes. Smart surfaces with touch and integrated lighting bring functionality to the décor skin. All these enhancements can be implemented using printing methods, especially screen printing. Presented here is the progress of Inteva's development into printing including the motivations, construction, challenges, and testing.

High Performance Thermoplastic Hot Melt Adhesive for Polar Substrates

Dr. Annie Moorhead, *HB Fuller*

In this dynamic world, automotive interior trim suppliers are continually working to optimize the bonding processes, improving their process efficiency and effectiveness, while continuing to meet the most demanding OEM specifications for bonding performance. Thermoplastic hot melt technology can accomplish both demands. New formulation approaches in thermoplastic hot melt products ensure premium performance while also securing all the process benefits from thermoplastic solutions. The ability of a thermoplastic hot melt to reliably bond polar substrates was a clear market demand which is now accomplished. With this advancement, both polar and non-polar surfaces can be bonded safely and efficiently with thermoplastic technology.

This presentation introduces a high-performance thermoplastic hot melt adhesive solution to enable interior parts producers to optimize their bonding process, reduce their capital investments and working capital, while efficiently improving their entire manufacturing process.

Beyond Black: Sustainable & Decorative TPEs Illuminating Automotive Possibilities

Stephanie O'Kon, *Kraiburg TPE*

Addressing the automotive industry's demand for innovation and sustainability, Kraiburg TPE introduces novel styrenic-based thermoplastic elastomers (TPEs) engineered for nextgeneration applications. Specialized resin technology has yielded black transparent TPE grades suitable for automotive interior trim, enabling new possibilities in design and functionality. A unique speckled TPE technology also offers a visually compelling demonstration of sustainability through increased recycled content. Extensive coloration of the base and speckle options provides aesthetic flexibility for interior mat applications and broader automotive designs. These TPEs deliver similar performance characteristics to conventional TPEs, enhancing design freedom and the ability to meet sustainability targets without compromising quality.

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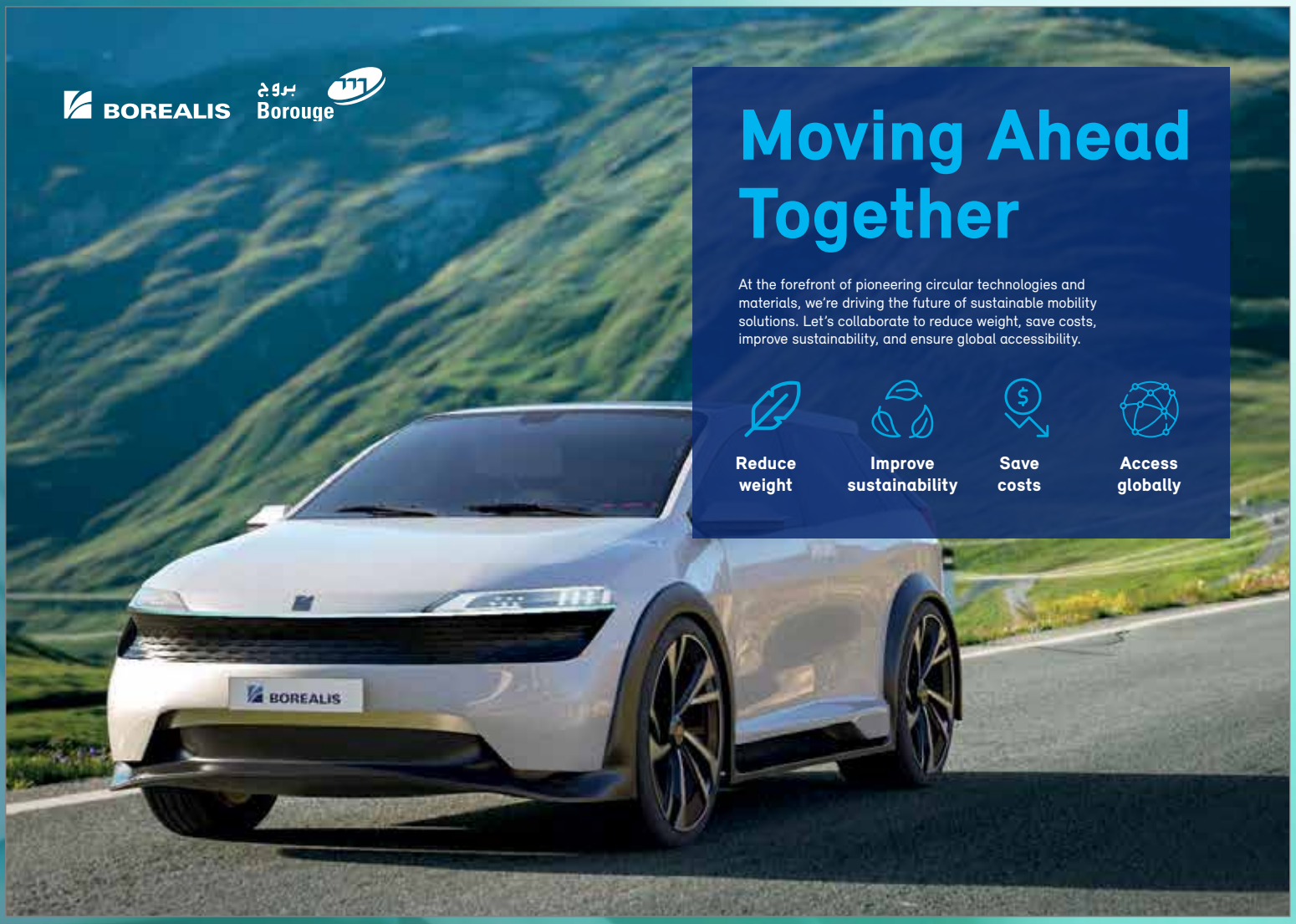

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EXTERIOR TRIM & STRUCTURAL APPLICATIONS

SESSION CO-CHAIRS: **Mark Pilette,** *Magna (Retired)*
Charlie Yang, *LyondellBasell* | **Kevin DeGrood,** *Borealis*

Launching TPO Materials with Recycle Content for Various Automotive Applications

David Choi, *LyondellBasell*

Sustainability has been an important topic more than ever for automotive industry for the past few years. Lyondellbasell has been dedicating lots of resources to the development of sustainability TPO materials with (mechanically) recycled raw materials for various automotive interior and exterior applications. This paper is to go over the key application areas of this new development, the material requirements and technical challenges and introduce some successful case stories.

Engineered Resin Replacement for Crash Absorbers

Kevin DeGrood / Tobias Epple, *Borealis*

Increasing safety requirements for modern passenger cars with new load cases require highly developed structures to absorb energy in the event of a collision, particularly for passive safety. At the same time, sustainability and lightweight design in the development of every component of a Mercedes-Benz vehicle are among the decisive factors for a future-oriented and sustainable vehicle concept. Predictive structural simulation of crash-relevant components allows to benefit from the full potential of the materials used. Based on highly developed material models from Borealis, such prediction accuracy is also state of the art for fiber reinforced PP compounds.

Next Generation Low-CLTE TPOs for Body Panel Applications

Tomik Mouradian, *LyondellBasell*

The automotive industry seeks weight reduction for vehicles to comply with increased fuel efficiency goals and other standards having an environmental impact. Replacing traditional metal or fibers reinforced composite body panels with thermoplastic olefin (TPO) materials presents key benefits including weight reduction, cost reduction, design freedom, recyclability, and dent resistance. This paper will present a new generation of TPOs developed by Lyondellbasell, which exhibit high stiffness, low CLTE, good cold temperature impact performance and excellent surface aesthetics before and after painting, suitable for body panel applications, such as tailgate outers, fenders, door outer panels, etc.

TPO Compounds for Enhanced Aesthetics

Shady Aboud, *Advanced Composites*

Advanced Composites has identified material solutions to enable enhanced aesthetics for applications utilizing TPO compounds. First, materials have been developed for high gloss applications that provide deeper black appearance than is characteristic of typical TPO compounds. Second, a line of materials has been formulated that allows increased light transmittance for decorative lighting applications. These materials provide opportunities for overall utilization of TPO compounds in place of alternative polymer technologies.

The Evolution of Bumper Fascia Materials: Paintable TPOs

Dan Jones and Antonio Ortiz, GEON

In the ever-evolving automotive industry, one of the most notable developments is the use of paintable Thermoplastic Olefin (TPO) and Polypropylene (PP) materials. The use of paintable TPO and PP materials for bumper fascia offer numerous benefits, including cost savings, enhanced safety, improved fuel efficiency, design flexibility, aesthetic appeal, corrosion resistance, and environmental sustainability. This paint ability ensures that the bumper fascia can match the vehicle's overall color scheme, enhancing its aesthetic appeal. The ability to paint these materials also allows for customization and personalization, which is increasingly popular among consumers. These advantages make TPO and PP materials a preferred choice for modern automotive designs, reflecting the industry's commitment to innovation and sustainability.

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Dr. Petya Yaneva / Sunil Earath, *SABIC*
Dr. Murali Reddy, *CCC Plastics* | **Dr. Sharad Thakkar,** *Niche Polymer*



Enabling Traceble Sustainability in Automotive Supply Chains with ISCC PLUS

Carlos Merida, *ISCC Plus*

As automotive companies advance toward ambitious climate goals and face evolving international regulations, sustainability certification is key to ensuring credible and traceable supply chains. The presentation will explore the application of the ISCC PLUS certification system in TPO supply chains, highlighting the different chain of custody options, like mass balance, and verified sustainability claims. With global acceptance across sectors, ISCC PLUS supports companies in reducing greenwashing, strengthening consumer trust, and aligning with regulatory and voluntary frameworks.

Walking the Line: Scaling TPO Recovery Without Compromising Quality in a Shifting Global Market

Hayden Latham, *Padnos*

As OEMs face increasing pressure to meet recycled content mandates, the push to scale automotive-grade TPO recovery has never been stronger. But with demand outpacing traditional supply channels, the industry must grapple with a fundamental challenge: how do we produce more without sacrificing quality?

This presentation will examine scalable strategies for producing high-performance recycled TPO blends sourced from end-of-life vehicles (ELVs), with a focus on ASR (Auto Shredder Residue) extraction as the most viable, cost-effective alternative to dismantling. Attendees will learn why the U.S. shredder infrastructure—designed for speed and volume—makes interior and exterior TPO recovery uniquely feasible through selective ASR blending at low rates, and why "dilution is the solution" when it comes to consistent quality.


Vision for Sustainable Mobility Through Innovative TPO Materials and Ecosystems

Mark Allen & Mark Jablonka, *Dow*

Mobility is gradually transforming to meet the sustainability demands of safer materials, climate protection, and circularity. This overview highlights advancements in thermoplastic olefins, focusing on Dow's approaches, demonstrating how they address these needs while offering additional benefits over traditional materials. It will showcase the evolution of parts and polyolefins to comply with end-of-life vehicle regulations and achieve carbon neutrality by 2050. Emphasis will be placed on the necessity for innovation in part design and the creation of ecosystems that value materials throughout the vehicle's lifecycle and at its end of life.

New Sustainable Solutions for Thermal Management in Electrical Vehicles

Nicolas Schlutig,
Sumika Polymers Compounds Europe

Today, effective thermal management of EV AND sustainable material is key driver in automotive sector. This presentation shows different applications provided by Sumika Polymer Compounds EUROPE to well manage cooling of different component and sub-component of the battery pack. Some technical solutions using sustainable Short Glass Fibre Reinforced Polypropylene (SFGPP) will be deeply show case.

Aesthetics of PIR/PCR Compounds

Kevin DeGrood, *Borealis*

Automotive industry trends continue to include sustainability, lightweighting and improved interior aesthetics. Post-Industrial Recycled (PIR) and Post-Consumer Recycled (PCR) polypropylenes continue to deliver all three. Polypropylene is a key plastic within sustainability targets for the automotive industry because of it's ease to reuse and it's lightweight features when compared to similar performing engineered resins. Feedstreams of these recycled products can prove challenging for interior appearance and color matching targets for OEM's and Tiers, but improved processes to clean and prepare the recycled base polypropylene resins have given these materials the ability to meet these challenges.

SUSTAINABILITY

SESSION CO-CHAIRS:

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Dr. Murali Reddy, *CCC Plastics* | **Dr. Sharad Thakkar,** *Niche Polymer*



Challanges Associated with Using PCR in Place of Virgin Resin

David Nix,
Green Group Consulting

Establishing a consistent supply and consistent properties that can be counted on are significant hurdles. A qualification process for new platforms that can take 2-3 years relies on existing supply streams. PCR by its nature can change because the supply stream is not being made on purpose for PCR consumption. Price swings that dip below cost for PCR manufacturers is a major concern as well. The session will address all above-mentioned topics with focus on Polypropylene.

An Additive System for Superior Long-Term Heat Aging in Recycled Polypropylene for Automotive Applications

Michail Dolgovskij, *SI Group*

Automobile manufacturers are aiming to use increasing amounts of recycled materials in modern vehicles. SI Group has formulated a new solution with exceptional long -term heat aging performance in rPP systems suitable for automotive applications requiring part survivability at 150 °C for durations over 1000 hr. Data for multiple recycle streams will be presented.

Bringing Thermoplastic Elastomer (TPE) Manufacturing to the Next Level

ReNeuvo Composites

Sustainable Post Consumer Recycled Polypropylene for Class A Automotive Applications

Susan Blackson, *PureCycle*

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PROCESS ENABLING & ADDITIVE MANUFACTURING

SESSION CO-CHAIRS: Rohan Repale, *Harman International*
Paul Sieradzki, *Toray Plastics (America)* | **Suresh Shah,** *Emeritus*



Material-Process-Microstructure Property Relationships of Fiber Reinforced TPO Composites Fabricated via Thermoforming

Amit M. Deshpande, *University of Delaware*

Thermoplastic polyolefins (TPOs) and TPO composites with short fiber reinforcements have been widely used in automotive interior trim and exterior panels, as they offer a good balance of scratch resistance and impact resistance at a relatively low cost. They have been extensively utilized due to their potential for lightweighting, especially with short fiber reinforcements, and their compatibility with mass-production processes, such as injection molding. The use of continuous fiber reinforcements can help open up new avenues for TPO composites, as they offer superior mechanical properties. However, the manufacturing route for such components is drastically different due to the nature of continuous fiber reinforcements.

Thermoforming, a process similar to compression molding, is one of the few mass-production scale processes compatible with continuous fiber reinforcements. Thermoforming is a complex thermomechanical process where several phenomena occurring at micro-, meso- and macro-scale affect the microstructure. Elucidation of Material-Process-Structure-Property (MP2) relationships for process conditions typically encountered in thermoforming is critical to understanding material behavior under these conditions and developing part performance predictive capabilities. This study aims to establish qualitative and quantitative relationships between matrix blend composition, fiber surface morphology, and cooling rates typically encountered during thermoforming, with the micro-scale phenomena of crystallization kinetics and, subsequently, the development of fiber-matrix interface strength. Results from differential scanning calorimetry, polarized light microscopy, and single-fiber pull-out tests have been presented, and their implications on MP2 relationships have been discussed. These are subsequently compared with a typical thermoplastic matrix, polypropylene, to develop a comparative understanding of the difference in the behavior of a thermoplastic composite versus a TPO composite.

Processing Behavior of Recycled Thermoplastics: Process-Induced Changes in Microstructure

Paula Hohoff, *University of Wisconsin*

The extensive use of plastics presents both opportunities and challenges for sustainability. Mechanical recycling subjects plastic materials to thermal and mechanical stress, resulting in physical and chemical changes. The impact of these changes on flow behavior during industrial processing techniques is not yet fully understood. Accurately predicting changes in material properties—and the resulting effects on processing behavior—is essential for ensuring the reliable industrial use of recycled materials. In this work, measured data from mechanically recycled polypropylene is used to investigate process-induced changes in flow behavior and microstructure through both experimental and simulation approaches.

Smart Simulation of Low Constant Pressure Molding Using Virtual Sensors

Alex Baker, *Moldex3D*

This study investigates the benefits of simulating low-pressure molding processes, such as iMFLUX and Decoupled 3, with real-time pressure control using sensor feedback. Incorporating simulation enables dynamic process optimization, resulting in shorter cycle times and fewer defects.

Low-pressure molding offers the capability to manufacture larger components using smaller machines with lower clamp force and injection pressure. This technique also supports environmental sustainability by reducing energy usage and facilitating the incorporation of recycled materials.


Advances in Lightweighting Validation, Correlating Foaming Agents and CAD Simulation to Molded Automotive Components

Scott Weber and Zachary Alderman, *Avient*

Chemical foaming is effective, but its traditional validation process can be costly and timeconsuming. CAD simulation software allows manufacturers to predict weight reduction, tooling modifications, and performance characteristics of foamed components before production, saving time and money by reducing the need for physical trials. Recent advancements in olefin trials show a strong correlation between CAD predictions and the actual performance of molded automotive parts, enhancing efficiency and supporting sustainable automotive designs.

PROCESS ENABLING & ADDITIVE MANUFACTURING

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Ultra High Flow Polypropylene for Processing Challenging Applications

Sassan Tarahomi,
Mid Michigan Plastics

Ultra-high flow PP resins are great processing aids to increase base material flow when molding or extruding a thin wall part. Mold or die pressure reduction can easily be achieved with using ultra high flow PP. Material lubricity assists with flowability and therefore reducing pressure required to fill a cavity or to extrude a profile. Faster cycle time and lower tonnage press are advantages that can be gained by using ultra high flow PP.

NPP Lattices to Enhance Formability of Cellulose PP Nonwovens

Meghana Kamble, *Weav3d*

Cellulose polypropylene nonwovens, also called "paper composites," are a recent innovation in sustainable thermoplastic composites. Unlike existing NFPP nonwovens made from hemp, jute, or kenaf, paper fibers are widely available, and nonwovens can be produced using conventional wet laid processes from either virgin or recycled feedstock. One disadvantage of these paper fibers is their short fiber length which results in low melt tear strength – complicating handling and limiting the achievable depth of draw.

WEAV3D, in partnership with the University of Tennessee, Knoxville and an automotive OEM, have combined paper composites with natural fiber composite lattices to increase melt tear strength and handleability, allowing the formation of large, deep-draw components. This presentation will summarize the results of lab-scale and full-scale forming trials, including key considerations for part design and lattice optimization that impact formability.

Advanced TPE Materials for Airbag Cover Applications

Katuya Kida, *Sumitomo Chemical Co., Japan*

Sumitomo Chemical is committed to providing technological solutions that enhance comfort and ensure optimal safety in the automotive industry by continuously developing novel materials and exploring new approaches.

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