



THERMAL MANAGEMENT SYSTEMS AND MATERIALS 2024 CONFERENCE

IN-PERSON JUNE 13, 2024
SHERATON DETROIT NOVI HOTEL - Novi, MI USA

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Thermal Management Systems and Materials 2024

7:30 a.m. **Registration, Networking and Continental Breakfast**

8:30 a.m. **Welcome and Opening Remarks**
Mr. Sean Osborne, Vice President
The ITB Group

Thermal System Developments

8:45 a.m. **KEYNOTE PRESENTATION**
Johannes Helmich, CTO
TI Fluid Systems

9:25 a.m. **Trends and Novel Solutions for Efficient EV Glycol Thermal Management**
Dr. Brian Cardwell, Senior Director of Advanced Fluid Handling
Cooper Standard

The unique requirements of electrified vehicles enable development of new light-weight thermoplastic glycol fluid handling and control products. This presentation will highlight solutions that address the size, complexity and affordability of glycol thermal management systems as well as highlighting novel integration opportunities which deliver improvements in overall system efficiency.

9:55 a.m. **A Centralized Secondary Loop Thermal Module for Electric Vehicles**
Nicholas Jordan, Product Line Director, Thermal Management
Forvia Hella

Centralized thermal management modules for the coolant and refrigerant system have emerged as cost effective EV solutions. In parallel, natural refrigerant such as R290 and R744 show promise for heat pumps. To unlock the true potential of centralized thermal management modules, it is key to understand which functions are best allocated to the coolant or refrigerant system. A secondary loop thermal module enabling simplified system architectures, decreased maintenance, and improved vehicle packaging will be described.

10:25 a.m. **Networking Break**

11:00 a.m. **Integrated Pump/Valve Solution for Thermal Management Systems**
Anthony Carman, Engineering Director
Tengam Engineering

Functionally integrated thermal modules have been introduced for BEVs with compact integrated designs. They are typically large, vehicle specific and lack degrees of application flexibility. Pump and valve integration solutions that maintain

high performance and packaging flexibility, while reducing complexity with minimal system design changes will be highlighted.

Surfaces and Heat Exchangers

11:30 a.m. **Interior Thermal Surfaces to Improve EV Energy Management and Occupant Comfort**
Jillian Cooper, Marketing & Business Strategy Director
Forvia Faurecia

Forvia is investing in industry transformations under its Science Based Targets Initiatives and CO₂ reduction roadmap. From an Interiors perspective, thermal surfaces will revolutionize passenger comfort. Integrated heating solutions enhance occupants' comfort experience with individualized thermal bubbles while optimizing EV energy management.

12:00 p.m. **3D Printing High Performance Heat Exchangers**
Mark Norfolk, President
Fabrisonic

This presentation explores developments in 3D printing which provide designers with unprecedented flexibility in geometry and material utilization allowing integration of fluid channels and embedding electronics. A significant breakthrough lies in the utilization of new solid-state welding techniques, allowing the integration of multiple metals into intricate and complex parts. Hybrid manufacturing, where traditional methods are synergistically combined with additive techniques for cost-effectiveness will be emphasized.

12:30 p.m. **Lunch**

1:30 p.m. **Hybrid Cooling Plates for Batteries and Power Electronics**
Marco Barbolini, Product Manager Thermal
Roehling

This presentation explains the development of hybrid metal/plastic cooling plates for a lighter efficient solution. The design combines formed plastic parts with metal sheets to form fluid channels in a cost-effective manner. Critical processing factors such as adhesion, surface treatment and welding will be described.

Surfaces and Heat Exchangers

- 2:00 p.m. Battery Electric Vehicle (BEV) Thermal Management Systems – Material Optionality**
Dr. Jeffrey Helms, Automotive Director, Engineered Materials
Celanese
The requirements for BEVs provide opportunities for OEMs and Tier 1s to select materials that have previously not been capable of meeting ICE temperature requirements. This talk examines current OEM practices and material optionality available to the automotive supply base for designing BEV thermal management systems.
- 2:30 p.m. Engineering Plastics Developed for Hybrid and EV Thermal Management Systems**
Russell Bloomfield, Application Development Manager
Envalior
The performance of proven PPA and PPS thermal system materials will be presented. A new hydrolytically stabilized PA6 material offering superior creep and fatigue performance, compared to GFPP materials, will be introduced. With the advent of immersive cooling as a means of maximizing heat transfer, the presentation will also share findings from long-term chemical exposure tests conducted with select dielectric fluids.
- 3:00 p.m. Networking Break**
- 3:20 p.m. Powering the Shift: Thermal Management Challenges in the Transition from ICE to BEV**
Scott Nakon, Global Automotive Market Manager
Teknor Apex Company
This presentation explores critical market trends and legislative shifts driving coolant hose changes. Using insights from leading OEMs, a comparative analysis will be presented, contrasting full plastic solutions with those of thermoset EPDM and Sarlink® thermoplastic vulcanizates (TPV), as well as braided versus multi and mono-layer constructions. Unique challenges and solutions for TPV coolant hose production will also be highlighted.

- 3:50 p.m. Adhesive Resin Enabling Technology for Multilayer Thermoplastic Coolant Tubes**
Dennis Que, Manager of Business Development
Mitsui Chemicals America
Multilayer thermoplastic tubing has emerged as the leading construction for EV thermal management coolant tubing. This presentation will discuss the performance of commercial adhesive resins and TPV compounds that are being supplied to OEMs for production vehicles. Mono and multilayer high flexibility smooth wall coolant tubes will be highlighted.
- 4:20 p.m. Influence of Relative Thermal Index on Long-Term Mechanical Performance of Engineering Polyamides**
Stephen Denny, Application Development Engineer - Automotive
EMS-CHEMIE
High performance polyamides can be tailored to address the unique requirements of challenging applications. This presentation will show how selective evaluation of a thermal profile can improve material solutions to reduce failures and promote part longevity. Relative Thermal Indices (RTI) of polymer compounds will be compared, highlighting how long-term heat exposure influences mechanical performance.
- 4:50 p.m. Silicone-free Thermal Interface Materials**
Manuel Heidrich, Global Director of Thermal Interface Material
Bostik
Bostik's strategic acquisition of Polytec PT has paved the way for significant advancements in thermal interface and adhesive technology. The focus of this presentation will be on advanced functionality and sustainable silicone-free solutions for EV batteries.
- 5:20 p.m. Closing Remarks**

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Thermal Management Systems and Materials 2024

Thursday, June 13, 2024

Sheraton Detroit Novi Hotel · 21111 Haggerty Road, Novi , Michigan 48375

Register On-line to Attend at www.itbgroup.com

Need Hotel Accommodations? Click [HERE](#) for room block options

Interested in Automotive Battery Pack Integration?

In conjunction with ITB's Thermal Management Conference, we are also hosting our first Automotive Battery Pack Integration conference on June 12th (same venue). Opportunities to participate are available and special pricing is available if you wish to attend BOTH conferences. Check out the details [HERE](#).

For more information please contact Bryan Eldredge at beldredge@itbgroup.com

