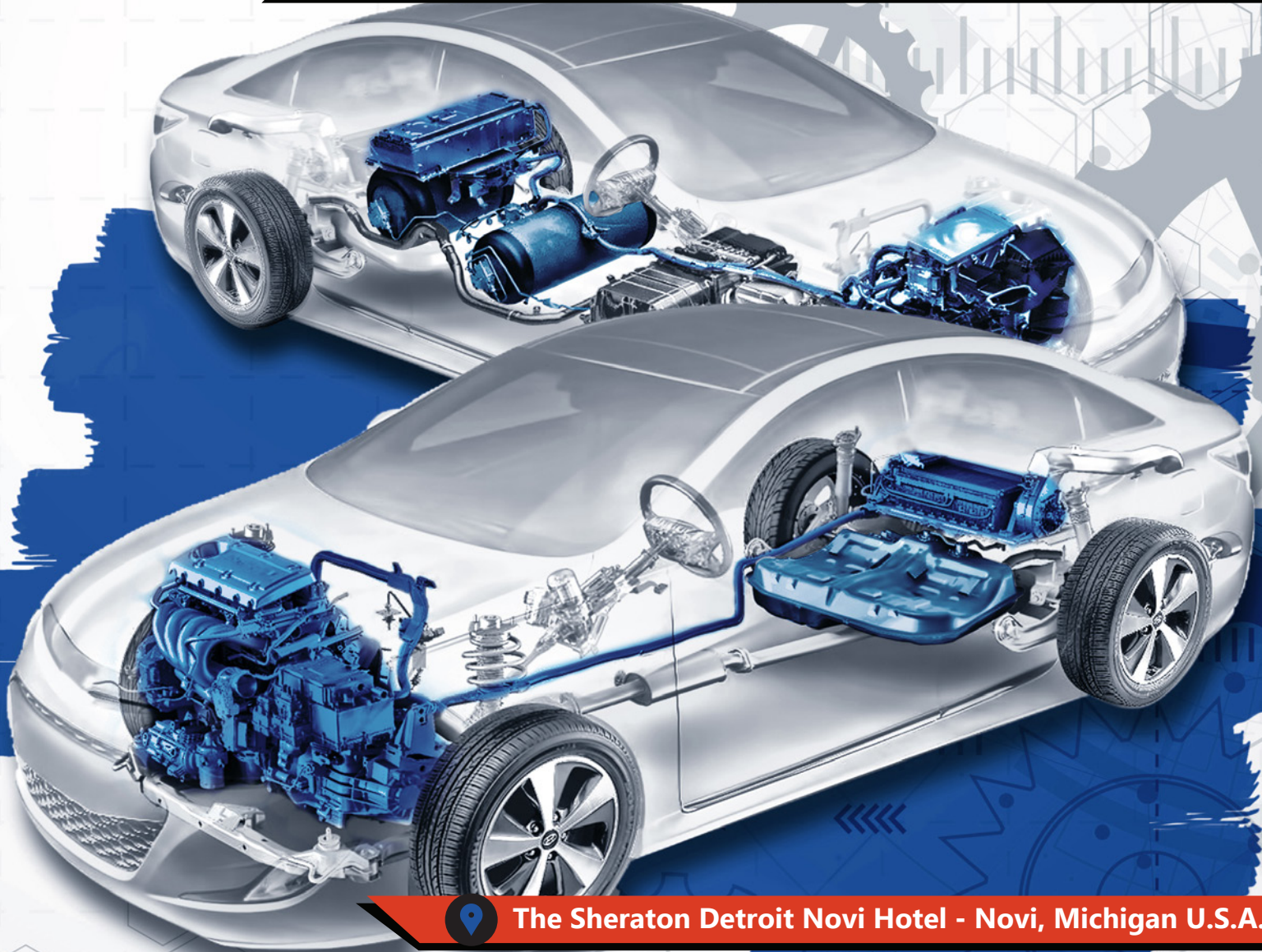


# Automotive Energy Storage Systems USA 2021

**itB**  
GROUP  
*when technology matters*

In-Person on September 23 and 24, 2021



 The Sheraton Detroit Novi Hotel - Novi, Michigan U.S.A.

Final Program

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# Day 1 Program Agenda - September 23, 2021

7:45 a.m. **Registration, Networking, and Continental Breakfast**

9:15 a.m. **Welcome and Introductory Remarks**  
*Dr. Joel Kopinsky, Managing Director and Co-Founder - [The ITB Group](#)*

## Fuel Line System Innovations

9:30 a.m. **High Performance Polymers to Meet the Demands of Traditional Fuel Delivery Systems**  
*Automotive Business Development Engineer*  
[Arkema](#)

Long-chain polyamides (LCPA) have long-term proven track record of delivering reliable and cost effective fuel delivery solutions. The latest LCPA solutions for entire fuel delivery system will be presented including bio-based versions. Additional highlights will include LCPA's capabilities to meet low wash-out, higher temperatures, harsher fuel aging conditions, stricter environmental regulations, and sustainability goals.

10:00 a.m. **New Electronic Methods of Quick Connector Verification**  
*Fluid Carrying Systems Regional Director, Americas*  
[TI Fluid Systems](#)

With the increasing complexity of vehicle systems, the number of critical fluid connections is growing rapidly. To minimize warranty and enhance safety, new "operator independent" electronic connection verification solutions for a wide range of quick connector (QC) designs has been developed. TIFS will present the design features of their new range of "electronic QCs" and highlight the application potential for critical fluid connections.

10:30 a.m. **The Value of Low Extractable Multilayer Tubing for the Future Design of Fuel Tubing Systems in the North American Market**  
*Director OEM Marketing*  
[Evonik](#)

Evonik is finalizing a \$440 million investment in a new Polyamide 12 production complex in Marl (Germany) in 2022. Evonik has previously presented its new generation of low extractable

multilayer tubing for fuel lines. The presentation will stress the value in the supply chain of its new generation constructions including the sustainability aspects.

11:00 a.m. **Networking break**

## Further Innovations in Fuel Components

11:45 a.m. **A Practical Assessment of ANG Technology as an Alternative Fuel Storage System for Light-Duty Vehicles**  
*Senior Product Research Engineer*  
[Ingevity](#)

Adsorbed natural gas (ANG) technology is proven to be a viable alternative fuel storage system in bi-fuel vehicles and enables wider adoption of renewable natural gas. A field study was conducted to demonstrate the performance of the ANG technology. This presentation describes key results from the field study such as the natural gas driving range, GHG reduction, and the realized fuel savings.

12:15 p.m. **Fuel System Safety – An Owned Interaction Between Sub-Supplier, System Supplier, OEM, and Governmental Agencies**  
*Technical Fellow, SFI Investigation, Chassis Systems Specialist, Fuel and Power Steering*  
[General Motors](#)

To drive for fewer fuel system safety related incidents and execute field actions quicker, requires strong interaction and communication between sub-suppliers, system suppliers, OEM's and Government agencies. This presentation will highlight topics including types of field actions, key components which drive most field actions, and the process from topic discovery to field action. The final segment will discuss the vital role each individual has in achieving safety success as well as open and complete communication with government entities.

12:45 p.m. **Lunch**

# Automotive Energy Storage Systems 2021

## Innovations Continue for Fuel Tanks

**2:00 p.m. Integration and Testing of an Electronically Controlled Fuel Tank System**

*Senior Manager Engineering Rhapsody*  
**Kautex Textron**

Rhapsody is an electronically controlled tank system which controls all venting paths from the fuel tank in a single smart valve component. A fuel tank based on Ford's C2 platform has been built and integrated into a Ford Escape. Extensive lab testing, both in refueling and simulated dynamic driving situations, and on public roads has been conducted. The presentation will give an overview of the Rhapsody system, its integration into the Ford Escape and highlight some results of the vehicle testing.

**2:30 p.m. Fuel Systems 2.0 - Innovative Concepts to Enable Hybridization While Keeping the Focus on Cost Reduction**

*Systems Application Engineering Manager*  
**Plastic Omnium**

For many years the industry has been supplying PHEV fuel systems to meet the needs of the market, however these technologies come at a cost premium due to capital investments Plastic Omnium is developing a low cost manufacturing solution that supports increased PHEV production volumes while conserving money to invest in the next generation of mobility.

**3:00 p.m. Networking Break**

## Material Innovations

**3:30 p.m. Aggressive Diesel Resistant POM and Low Swell PPS for Fuel Delivery Module Components**

*Application Development Engineer*  
**Polyplastics**

Materials specifically developed for diesel fuel delivery module components and gasoline pump impellers will be described. Benefits including protection against aggressive diesel fuels and extreme low swelling in the presence of fuel, allowing for tight part tolerances and maximum fuel pump efficiency will be highlighted.

**4:00 p.m. Graphene in Automotive Applications**

*Executive Director of Engineering, Fluids*  
**Martinrea International**

This presentation will go into our newest innovation for fluid management systems; Graphene and Nylon coated fuel and vapor lines. Following the successful introduction of Graphene and Nylon coated brake lines, Martinrea has developed fuel and vapor lines that have Graphene incorporated into the Nylon top coat which produces the same great benefits. The addition of Graphene to the Nylon topcoat provides superior abrasion resistance as well as several other performance improvements. We will also demonstrate how utilizing Nylon + Graphene coated fuel and vapor lines will also achieve vehicle lightweighting objectives.

**4:30 p.m. Cocktail Reception and Networking**



# Day 2 Program Agenda - September 24, 2021

8:00 a.m. **Registration and Continental Breakfast**

9:00 a.m. **Evolving Fuel Systems for Transport**  
*Dr. Joel Kopinsky, Managing Director and Co-Founder*  
**The ITB Group**

## Diesel and Natural Gas Developments

9:30 a.m. **Low Carbon Fuels – Renewable Diesel**  
*BFO Fuel Pump Modules*  
**General Motors**

This presentation will review the adoption of Renewable Diesel (RD) fuel in the marketplace both in the US and globally. The advantages and disadvantages of RD as a motor fuel, and the potential impacts to the hardware used for fuel delivery in the automotive industry will be addressed.

10:00 a.m. **Evolution of SCR Tank Heaters for Change Regulatory Requirements**  
*Manager Product Portfolio Americas, and Senior Product Manager Tanks Global*  
**Roehling Automotive**

Given the changing regulatory emissions requirements, diesel emissions systems are facing increased challenges for a wider range of operating conditions. As such this presentation will discuss the increased regulatory compliance challenges and new unique solutions for SCR tank heaters.

10:30 a.m. **Networking Break**

## Tomorrow's Fuels and Components

11:00 a.m. **Railways: 200 Years Old but Leading-Edge Technology Demands Change**  
*Director, Railway Education*  
**Michigan State University**

Railways combine energy efficiency with the ability to move heavy and bulky goods most economically over long distances. They optimize space and land use for mass transit for people.

Many externalities impacting both these criteria. Railways face significant questions about what they are and how they operate. This is a high-level, non-technical overview of how railways could evolve, and some changes may be needed.

11:30 a.m. **DOE Perspectives and Progress Towards Hydrogen Fuel Cells in Light- and Heavy-Duty Transport Applications**  
*ORISE Fellow and FCTO Manager*  
**Hydrogen and Fuel Cell Technologies Office, U.S. Department of Energy**

This presentation provides an overview of the U.S. Department of Energy's (DOE) activities within the Office of Energy Efficiency and Renewable Energy and focuses on fuel cell and onboard hydrogen storage technologies. Specific examples of projects demonstrating progress toward the DOE's technical and cost targets will be covered.

12:00 p.m. **Hydrogen Pressure Management Through Proper Regulator and Valve Selection**  
*Director of Global Marketing*  
**Emerson Automation Solutions - TESCO**

The combination of high filled tank storage pressures, low tank pressures before filling, and the need for consistent and repeatable pressure and flow delivery to the fuel cell introduce unique challenges in the selection of the regulators and valves. The presentation explores these challenges and presents the benefits offered by the current state-of-the art solutions available to the market.

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

## EXHIBITORS

Arkema

Eaton

Evonik

Kautex Textron

Kuraray

Plastic Omnium

# Automotive Energy Storage Systems 2021

## High Pressure Hydrogen Storage Tanks

### 1:30 p.m. How High-Performance Polymers Enhance Hydrogen Storage Tanks

*Business Development Engineer*

**Arkema**

For FCEVs, hydrogen tanks must be pressure resistant, permeation resistant, durable across a wide range of temperatures, and cost effective. This presentation will focus on how Arkema's Polyamide 11 helps create such a tank when used as a liner material. Cold impact performance, blistering resistance, barrier properties and processing will be discussed. Solutions for high performance composites will also be addressed.

### 2:00 p.m. Non-Automotive Demand for Hydrogen Storage

*CTO and CEO*

**Steelhead Composites**

In the last 18 months, Steelhead has received over 1,100 inquiries for hydrogen storage solutions, most not in automotive applications, giving us a wealth of information on where hydrogen is taking hold, both in application and geography.

### 2:30 p.m. Introduction of Materials and Solutions for Storage Tanks Such as Hydrogen Tank Liners

*Business Development*

**UBE America**

Polyamide has been used as a tank liner material for hydrogen storage since the first mass-produced FCEV in 2014. Excellent performance and material quality have led such tanks to outperform industry standards. Material offerings will be discussed including solutions applicable to various tank liner molding methods.

### 3:00 p.m. Hydrogen Fuel Cells - Integration of Under Floor Storage Modules to Allow Plug and Play Solutions for Electrified Powertrains

*CC Director - H2 Bus and Truck North America*

**Plastic Omnium**

As the hydrogen revolution continues to accelerate, traditional OEM's are considering hydrogen powertrains for trucks and light commercial vans. As a result, significant space constraints exist to be able to package hydrogen storage tanks. To meet this constraint Plastic Omnium is developing low profile storage modules that can provide efficient and cost effective energy supply on the vehicle.

### 3:30 p.m. Closing Remarks

Polyplastics  
Schrader Pacific

TI Fluid Systems  
YAPP Automotive

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# Energy Storage Systems 2021 - List of Sponsors

## Arkema

Arkema will proudly attend, sponsor and present at the ITB Group's Automotive Energy Storage Systems 2021 Conference in Novi, MI. The Arkema team will highlight the latest advancements in the High Performance Polymers product offering for traditional fuel systems as well as alternative energy systems such as hydrogen storage tanks & hoses. Arkema will provide an update on the continued investments in supply of long chain polyamides and long-term sustainability of the Rilsan® family of solutions for fuel delivery.

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[www.arkema.com](http://www.arkema.com)



## Eaton

Eaton's mission is to improve the quality of life and the environment through the use of power management technologies and services. We provide sustainable solutions that help our customers effectively manage electrical, hydraulic, and mechanical power – more safely, more efficiently, and more reliably. Eaton's 2020 revenues were \$17.9 billion, and we sell products to customers in more than 175 countries. We have approximately 85,000 employees. For more information, visit [www.eaton.com](http://www.eaton.com)

Contact: Brian Contat, Global Business Unit Director, Fuel Emissions  
Email: [BrianEContat@eaton.com](mailto:BrianEContat@eaton.com)



## EVONIK Corporation

Evonik is one of the world's leading specialty chemicals companies for over 50 years. Evonik's high-performance polymers portfolio encompasses its range of VESTAMID® polyamides, which have been the material of choice in the automotive industry and used extensively in fluid handling systems. Worldwide, VESTAMID® polyamide 12 and polyamide 612 are the most widely used polyamides for automotive tubing in applications such as fuel, airbrake, system cooling etc. Evonik's roughly €450 million investment increases the company's total capacity for polyamide 12 by over 50 percent between now and 2022. With the largest PA12 capacity in the world and innovative tubing solutions Evonik continues to invest and retain its position as one of the leading solution provider for the Automotive Industry.

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[www.vestamid.com](http://www.vestamid.com) / [www.evonik.com](http://www.evonik.com)



## Kautex Textron

At Kautex, we are driving the future. With 30+ plants in 14 countries, Kautex designs, develops and manufactures traditional and hybrid fuel systems, advanced cleaning solutions for assisted and autonomous driving, engine camshafts and plastic industrial packaging solutions. A pioneer in designing and manufacturing plastic fuel systems, Kautex is expanding its portfolio to include smart fuel systems and battery systems.

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## Kuraray America Inc.

Kuraray is a globally recognized specialty materials company that creates quality, sustainable solutions that enhance automotive powertrain performance. As part of Kuraray's ongoing commitment to the automotive industry, we opened an office in Novi, MI, in May 2019. Our EVAL™ EVOH resin is characterized by its outstanding gas and fuel barrier properties. Kuraray's Genestar resin, a high heat resistant polyamide (PA9T) with outstanding chemical resistance, is particularly suited for fuel delivery and component applications

Contact: Brad Lovett, EVAL Market Manager  
Phone: 281-204-6735 Email: [brad.lovett@kuraray.com](mailto:brad.lovett@kuraray.com)  
[www.kuraray.us.com](http://www.kuraray.us.com)



## Plastic Omnium

Plastic Omnium is a major player to provide tomorrow's components for clean, safe and connected cars. Worldwide leader in fuel systems, Plastic Omnium's Clean Energy Systems Division is committed to providing energy storage and delivery systems as well as depollution systems for conventional gasoline and diesel powertrains, in addition to hydrogen storage systems and fuel cells to support the transition to truly clean energy.

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www.plasticomnium.com



## Polyplastics USA

Polyplastics (a wholly owned subsidiary of the Daicel Group) is a global leader in the development and production of engineering thermoplastics solutions – with a focus on POM, PPS, PBT, LCP, PET and COC products. With more than 50 years of experience, our technical experts enhance manufacturing and product performance backed by a strong global network of R&D, production and sales resources. Polyplastics creates advanced solutions and expands customer value in a technically evolving market.

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## TI Fluid Systems

Global automotive manufacturers turn to TI Fluid Systems to develop and produce award-winning, industry-leading automotive fluid systems. For nearly 100 years, TI Fluid Systems has provided its technology to vehicles around the world. With 107 manufacturing locations in 28 countries, our strength lies in our ability to creatively meet the ever-changing needs of the global automotive industry.

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www.tifluidsystems.com



## YAPP USA Automotive Systems, Inc.

YAPP is a global clean mobility system supplier and service provider. We provide energy storage and thermal management systems for conventional and electrified powertrains including low-emission fuel systems, urea systems, evaporative management, hydrogen storage, battery packaging, battery thermal management, and innovative air ducting systems. Yapp has technical centers in North America, China, Germany, and India and 25 manufacturing locations.

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## The ITB Group

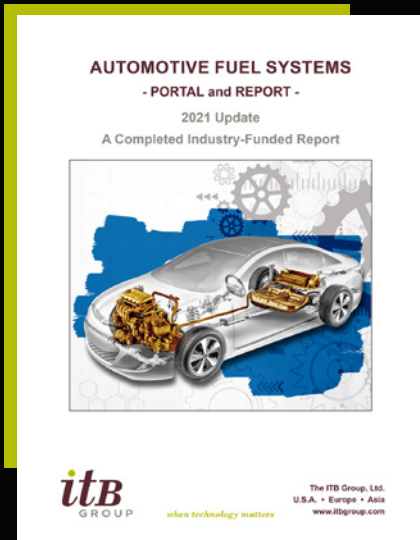
The ITB Group was established in 1992 with a simple premise: to bridge the gap between developing a suitable technology and building a successful business. We are a specialized consulting firm with strategy, data, and insight for energy storage, powertrain, thermal management, body, and cabin evolution.

Contact: Mitra O'Malley, Managing Director & Co-Founder  
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**New 2021 Industry-Funded Fuel Reports**  
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