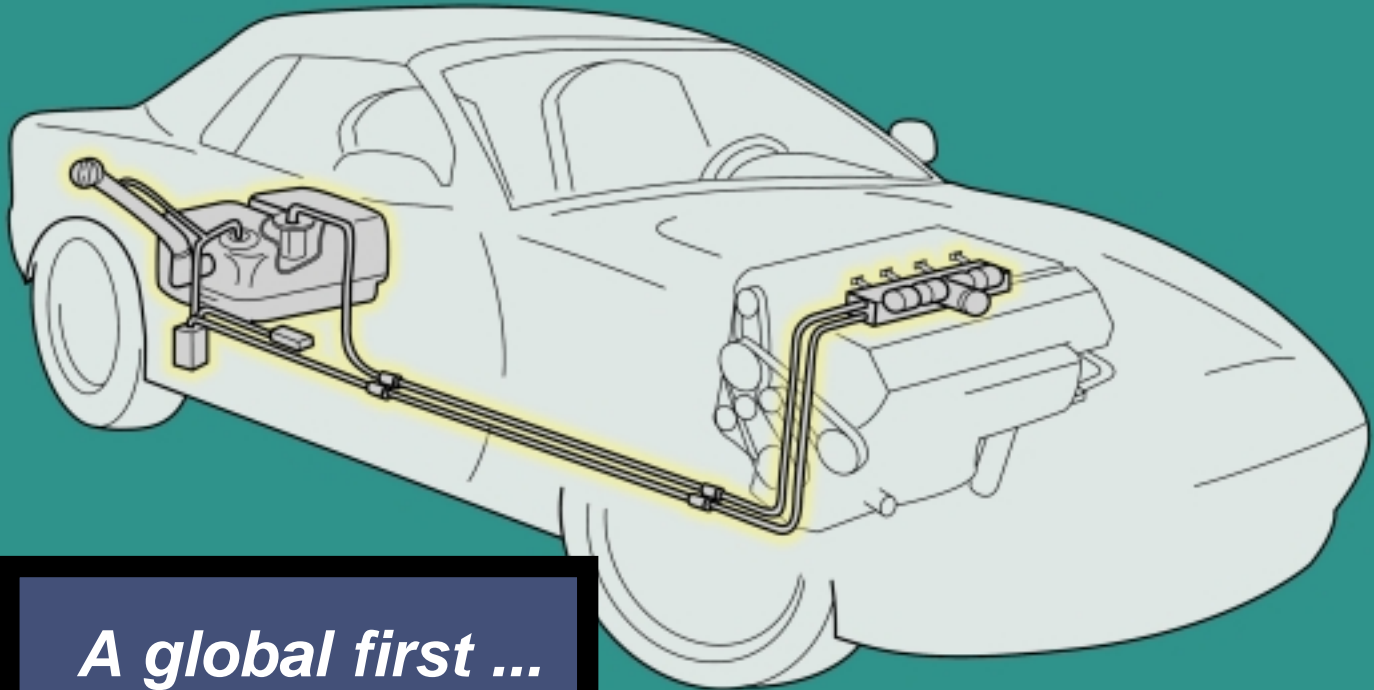


# AUTOMOTIVE FUEL SYSTEMS BEYOND 2



*A global first ...*

A forum for international executives and engineers to address technological initiatives and legislative issues for reducing fuel emissions — your one-of-a-kind opportunity to get practical, helpful information and advice from the industry's foremost authorities.

Friday, March 10, 2000  
The Ritz-Carlton Hotel  
Dearborn, Michigan, USA

Organized by:

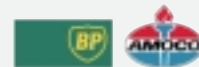


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## AGENDA

7:00 - 8:30 a.m.

### Registration and Continental Breakfast

#### SESSION 1: TRENDS IN GOVERNMENT REGULATIONS AND AUTOMOTIVE FUELS

8:30 a.m.

##### 21st Century Automotive Fuels in the U.S.

*General Motors, Automotive Fuels Consulting (U.S.A.)*

Considers developments in U.S. fuels, including fuel mixture changes such as the removal of MTBE and its replacement by alternative oxygenates. An evaluation of the potential of alternative fuels such as diesel will be provided. Includes both a short-term and a long-term outlook.

9:00 a.m.

##### New Tier 2 and LEV II Government Regulations

*U.S. EPA (U.S.A.)*

New EPA and California regulations are presented. A comparison is made with the present regulations.

9:30 a.m.

##### Trends in European Automotive Fuels and Evaporative Emissions

*Frank Palmer, Coordinating European Council (Belgium)*

Trends in European fuels including gasoline and diesel will be discussed, including changes in the chemical composition of these fuels such as the use of oxygenates and biodiesel. An overview of evaporative emission developments in Europe will be provided.

10:00 a.m.

##### Impact of European and U.S. Government Regulations on the Design of Fuel Systems

*Solvay (Belgium)*

New government regulations have had an enormous impact on fuel system technologies, including materials, processes, and component and system architecture. U.S. and European regulations, while achieving the same laudable goal, are leading their industries along totally different paths.

10:30 a.m.

##### Mid-morning Break

Exhibitors will display their latest fuel system technologies.

# AUTOMOTIVE FUEL SYSTEMS BEYOND



The only forum of its kind, the first annual **AUTOMOTIVE FUEL SYSTEMS BEYOND 2000** Conference will bring executives together from all over the world with a common purpose — to improve fuel system performance and efficiency.

Program sessions will be conducted by the world's leading experts. You'll learn from these practicing professionals in every key area of fuel systems:

- Government regulations and their impact on design and fuels

- Fuel developments and alternative fuels
- Key components and materials
- Emission control systems

In short, the program will be a well-balanced mix of technical, government and business issues. It's specifically designed to give you the information you need to meet your CAFE, LEV and ULEV goals ... while helping you enhance system performance.

#### SESSION 2: FUEL HANDLING COMPONENTS

11:00 a.m.

##### Permeation Methods, Comparisons, Capabilities and Limitations

*Dyneon (U.S.A.)*

Different test techniques may be used for evaluating fuel permeation. This presentation will discuss the development of test methods in light of their capabilities and limitations, with an emphasis on measurement and control. Methods will be presented to characterize materials and configurations at different emission levels, so as to suggest methodologies that could provide results scaleable to the SHED test.

11:30 a.m.

##### Composite Fuel Hose

*Hutchinson (France)*

A fuel line construction has been developed with a plastic inner tube and an outer rubber cover. This new concept leads to a hose with the combined properties of low permeation and flexibility. The paper will cover product description, key properties and application examples.

12:00 p.m.

##### Fuel Handling with Electrically Active and High Performance Thermoplastics

*LNP (U.S.A.)*

The need to protect the fuel system from static electricity will be examined. The system is described as from filling to injection. The presentation will look at today's needs and products, as well as future developments to fully comply with ORVR standards while eliminating static discharge.

12:30 - 2:00 p.m.

##### Lunch

#### SESSION 3: EMERGING FUEL TANK TECHNOLOGIES

2:00 p.m.

##### Fuel Systems for LEV II

*Visteon (U.S.A.)*

The impact of LEV II regulations on the entire fuel system will be considered. Special emphasis will be placed on the design of the plastic fuel tank and its subcomponents so as to enable it to meet the LEV II regulations.

2:30 p.m.

##### Fuel Payload Slosh Noise

*Fluid & Acoustic Services, Ltd. (Wales)*  
*Mardaker Pty Ltd. (Australia)*

With increasing demands by the OEMs for reduced vehicle noise, liquid fuel payload sloshing has been receiving attention. Plastic tank designs require the control of the fluid mechanic sloshing processes at the source allowing the shape of the tank surfaces to be appropriately defined to minimize it. Empirical prototyping techniques, augmented by CFO prediction of the slosh process, facilitate the development of low noise tanks.

3:00 p.m.

##### Development of Plastic Fuel Tanks with Reduced Permeation

*ExxonMobil Chemical Company (U.S.A.)*

The impact of changing fuel mixtures on plastic fuel tanks is presented. Changing operating conditions, such as high temperatures with diesel fuels, are evaluated. Developments in new fuel permeation barrier materials are considered.

3:30 p.m.

##### Afternoon Break

#### SESSION 4: EVAPORATIVE EMISSION CONTROL SYSTEMS

3:45 p.m.

##### Carbon Canisters for LEV II Regulations

*Mahle Filter Systems (Germany)*

In order to meet LEV II regulations, OEMs are typically allowing 10-30 mg hydrocarbon emissions from the canister. Generating credible data at such low levels, while isolating individual component emissions, is difficult. In order to separate canister and fuel tank emissions, a SHED within a SHED was constructed. Various canister configurations, purge conditions and carbons are evaluated.

4:15 p.m.

##### Fuel and Vapor System Modeling

*Ford Research Laboratories (U.S.A.)*

A number of analytical tools have been developed at Ford to assist in the simulation of evaporative emissions and fuel system behavior. Models of fuel volatility, vapor generation, and carbon canister adsorption and purge will be presented along with the fundamental physics on which they are based. Applications will be described and suggestions made as to future research directions.

4:45 p.m.

##### Innovation in Canister Design - A Smart Canister for GDI Engines

*Expert Components (Spain)*

The world's first smart canister has been developed to solve the problems surrounding the use of vapor trapping devices with gasoline direct injection (GDI) engines. It was made possible through a combination of novel engineering design and the simultaneous development of specialist computational fluid dynamics (CFD) software.

5:15 p.m.

##### Zero Evaporative Emissions Vehicles

*Delphi Automotive Systems (U.S.A.)*

California has created a requirement for zero emission vehicles and zero emission credit vehicles. Any vehicle that is not a true zero emission vehicle must have a zero evaporative emission fuel system to be eligible for zero emission credits. Delphi is developing zero evaporative emissions solutions for the entire fuel system, from tank to injectors. The system includes solutions for canister breakthrough and permeation, fuel tank permeation and durability, filler neck permeation and leakage, tube connection leakage, and engine air induction system breathing losses.

5:45 p.m.

##### Cocktail Reception

Sponsored by the American Iron and Steel Institute

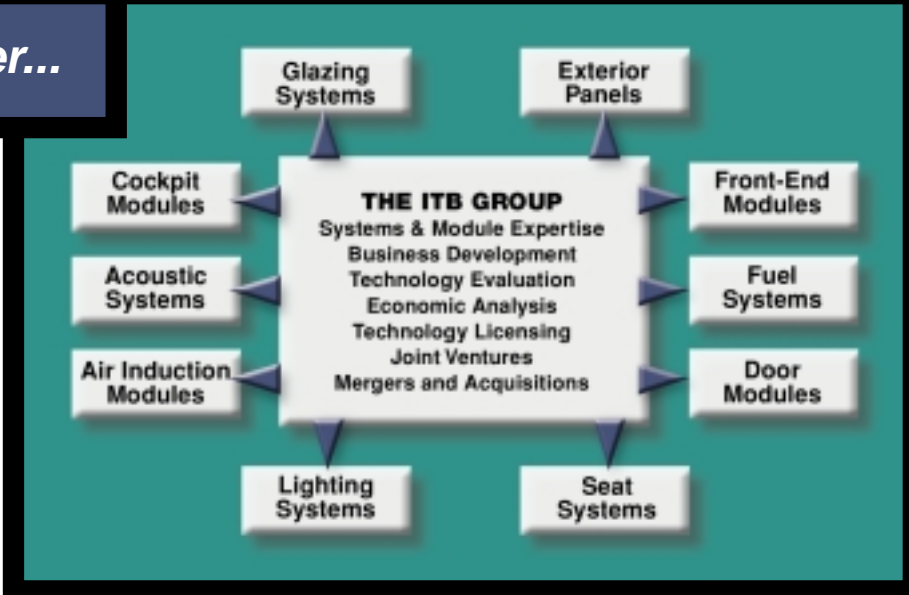
## About your organizer...

Established in July 1992, The ITB Group is dedicated to serving participants in the global automotive market. By combining strong technical and business skills, The ITB Group helps senior managers develop and implement strategies that provide sustainable long term competitive advantages.

### The ITB Group's core competencies are:

#### International Presence

The firm's presence in North America, Europe and the Far East provides a solid basis for automotive consulting assignments. Global automotive OEM requirements now require ITB to seek expanded presence in South America and Asia.



#### Technical Expertise

Advanced engineering degrees — together with many years of experience — provide the firm's consultants with the relevant expertise to understand difficult technical issues that face their clients. Such issues may be related to product design, materials, processes, or vehicle assembly.

#### Business Recognition

Widespread marketplace recognition and business experience enable the firm's consultants to interact with key automotive participants around the world. Participants include senior level managers, automotive research and design engineers, sales and marketing personnel, and government officials.

### Exhibitors:

American Iron and Steel Institute	Delphi	Freudenberg-NOK	Norma
BP Amoco	DuPont	Honeywell	Pilot
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	Expert Components	Mark IV	Stant
	ExxonMobil Chemical	Markel	Ube



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