

AUTOMOTIVE FORUM

TUESDAY MARCH 24 2009

2:30 PM – 5:00 PM

HOW TO SURVIVE THE CRISIS WITH COMPOSITES?



Moderator

● **Robert Eller Associates LLC. Robert Eller, President.**

Has carried out numerous technology, strategy, and manufacturing analyses, pricing forecasts, product positioning analyses, and market analyses in the automotive plastics industry in North America, Europe and China. MIT (BS Chem Eng), Brooklyn Polytechnic (MS Polymer Chemistry/Chem Eng).

AUTOMOTIVE MARKET OVERVIEW

1 The Automotive Thermoplastic 3

Composite Market: Global Recession, Industry Structure Shifts and New Technology Responses

- The effects of the global recession on the automotive sector
- The automotive thermoplastic composite supply chain
- The new opportunities from re-structuring of automotive demand model to meet green requirements, higher fuel prices and shift in regional demand



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AUTOMOTIVE MARKET OVERVIEW

2 Industrialization of Carbon Composite Industry 25

● **SGL Technologies GmbH. SGL Group - The Carbon Company. Jan Verdenhalven,** Wiesbaden Business Unit Chairman

- Carbon composite industry: markets and growth rate
- A lack of automation in downstream processes driving cost increases in automotive
- Automation of CFRP part component production: tape layer & fibre placement
- 2 case studies: carbon-ceramic brakes and crash structures

COMPOSITE CONTRIBUTION TO MASS REDUCTION AND ENVIRONMENT PRESERVATION: TWO CASE STUDIES

3 The Potential of Sandwich Composites in Lightweight Body Design 37

● **Evonik Röhm GmbH. Tilman F. Ehret,** Director Performance Foams Product Line Performance Foams

- Project background and motivation
- Implementation of sandwich composites in body parts
- Fuel-saving and CO2 reduction benefits
- Outlook for serial production applications

4 Advanced Composites in Commercial Transport Vehicles 47

● **Martin Marietta Composites. Grant Godwin,** Vice President and General Manager

- An overview of advances in emissions reduction and fuel efficiencies for commercial vehicles in recent years in the North American and European markets.
- Advancements in lighter weight commercial vehicles: Recent commercial product in the European and North American markets entering the market in 2009: Class 4 to 8 range (medium, urban delivery vehicles up to commercial trailers), as well as, commercial transit.
- 20 to 30% lower weight, 15-20% higher cargo loads, lower fuel consumption and emissions, reduced maintenance

NEW INNOVATIVE AND LIGHTWEIGHT COMPOSITES

5 New Innovative & Lightweight Composites for Automotive 63

● **Sabic Innovative Plastics. Frank Mooijman,** Automotive Global Technology Manager

- Developing lightweight and cost competitive composites for automotive and transportation industries
- Translating composite technologies from bumper to bumper
- Growing demand for environmentally compliant solutions
- Bio-based material that use natural, sustainable fibres for reinforcement
- Helping customers comply with environmental and safety legislation while meeting demand for better fuel performance

6 Spherical Solid & Hollow Glass Microspheres as Functional Fillers in Composite 75

Materials Applications

● **Potters Europe. Jean-Philippe Curdy,** Business Director EMEA (Europe, Middle East and Africa).

Engineered Glass Materials Division

- Hollow spheres technology for weight reduction
- Recent innovations
- Performances to a new level

NEW COMPOSITES FOR ENGINES

7 Composite for Fuel Cell Bipolar Plate Applications 91

● **GrafTech International Holdings Ltd. Adrianowycz Orest,** Senior Research Scientist

● **Huntsman Advanced Materials. Roger Tietze,** Group Leader Composites

- A new composite to meet the aggressive targets for performance and cost set by the U.S. Department of Energy for automobiles in 2015
- Mechanical testing, gas permeability, dimensional stability, and single-cell fuel testing data
- Cost-effective high-volume manufacturing techniques to lower plate costs per kilowatt and ultimately accelerate the widespread commercial adoption of hydrogen-based energy systems