

RAIL AND ROAD TRANSPORTATION FORUM

WEDNESDAY, MARCH 25 2009

2:30 PM – 5:00 PM

LIGHTWEIGHT
FIRE-SAFETY
COMPOSITES FOR
RAILWAYS ROLLING
STOCK AND
INFRASTRUCTURES



▪ Moderator

● **Bodycote Testing Limited. Peter Briggs,** Business Development Manager.

43 years research, technical and managerial experience in the chemicals and plastics industry and in fire laboratories concerned with products for construction, transport, furniture and electrical applications.



TABLE OF CONTENTS

RAIL AND ROAD TRANSPORTATION MARKET OVERVIEW

1 The Brazilian Collective Transport Market: Growth and Process 3

● **ABMACO. Luiz Orro,** Executive Director

- Brazilian Macro Economy: overview 2003-2008 and forecast 2009-2010
- Composite Brazilian Market: overview 2003-2008 and forecast 2009-2010
- Collective Transport: overview 2007-2008, growth & opportunities

REGULATION CHANGES AND SECURITY

2 Developments in the Fire Testing and Certification of Composites Used in Railway Rolling Stock and Infrastructure 33

● **Bodycote Testing Limited. Peter Briggs,** Business Development Manager Warrington Certification Limited

- Research on the fire performance of railway interior products
- New fire test methods and standards
- Changes in European Commission Rail directives and technical specifications for interoperability
- Fire safety engineering

3 Usage of Fire Safety Engineering Techniques in Railways 49

● **Laboratoire National de Métrologie et d'Essais (LNE). Alain Sainrat,** Fire-Safety Consulting and Fire-Safety Expert to the Tribunal de Grande Instance de Versailles

- Why FSE for railways rolling stock
- General methodology for FSE
- Example of fire simulation tools and their validation
- Presentation of a new European project "TRANSFEU"

4 Does a New Standard Mean New Materials? 63

● **Crepim. Franck Poutch,** Director

- Approach of the current regulations in France, England and Germany
- Key changes involved with the new prCEN TS 45 545-2
- Focus on a new parameter used for characterizing materials and seats: the heat release
- Consequences on materials design

COMPOSITE PARTS FOR RAILWAY INTERIORS

5 Fire-Retardant Composites: The Polyester Industry Now Leads the Fire Safety Race 109

● **Crepim. Franck Poutch,** Director

● **Cray Valley Composite Resins. Sébastien Taillemite,** Marketing Manager Europe

- A new technology based on unsaturated polyester resin jointly developed by Cray Valley and Crepim
- EN 45545 compliant resins and gel coats
- Main benefits as compared to traditional materials (resin and metal): easier part processing, better cosmetics, productivity increase, lightweight

6 Composite Side Cover for the Latest High-Speed Train (TGV) Generation 123

● **Stratiforme Industries. Vincent Marhem,** R & D

● **OCV Reinforcements. Gilles Rocher,** Marketing Manager Key Processes

- Meeting mechanical and fire behaviour specifications
- Resin Transfer Moulding process: the best compromise for series production
- Other composite parts to be produced for railway industry in the coming years

INNOVATIVE MANUFACTURING

7 Innovation in Filament-Wound Road Tankers for Indian Railways 133

● **TIFAC (Technology Information, Forecasting & Assessment Council), Dept. of Science**

& Technology Govt. of India. Soumitra Biswas, Adviser & Head – Advanced Composites Programme

- Successful case studies outlining indigenous efforts in developing products such as under-slung water tanks for passenger coaches for Indian Railways, a Venturi scrubber for pollution control and road tankers for acid/alkali transportation
- A complete overview of product design & technical features, filament winding systems specifications etc.