



Automotive Coating Technologies and Trends: Materials and Applications (AC-6464)

Automotive coatings require high performance, workability, and long-term durability. This applied and highly interactive workshop offers a sound assessment of the latest developments in materials, application methods, and design of high performance and environmentally compliant coating materials and operations.

WHO SHOULD ATTEND?

All personnel dealing with functional, decorative and protective coatings including process, design, specification engineers and quality control personnel will find this interactive workshop highly informative and relevant. The course is appropriate for attendees at all levels.

BENEFITS OF ATTENDING:

- Gain a thorough understanding of automotive coating materials and application parameters.
- Develop an overall understanding of coatings and corrosion prevention methods.
- Enhance durability of coatings and learn how to improve overall performance
- Learn how to save costs by judicious selection of materials and processes
- Receive unbiased technical opinions on what works, what does not and why.
- Reinforce your mastery of troubleshooting and problem solving capabilities.

Course Outline

- **Automotive Coatings**
 - Overview of Automotive Coating Technologies
 - Global Challenges, Opportunities and Unmet Needs
 - Cost and Regulatory Constraints
 - Tools and Emerging Technology Utilization: Smart Coatings
 - Coating Types, Properties, and Trends
 - The Role of Raw Materials (What to use. When to use, How Much to use)
 - Rational Formulation and Outcome Measurement
- **Adhesion of Coatings**
 - Requirements for Good Adhesion: Materials and Application
 - Methods of Promoting and Maintaining Adhesion
 - Effect of Adhesion on Aesthetic, Durability and Corrosion Resistance of Coatings

- **Surface Pretreatment**
 - Surface Nature and Characteristics
 - Reasons and Benefits of Surface Pretreatment
 - How to Measure and Assess Surface Cleanliness
 - How to Select a Proper Surface Treatment Process
 - Phosphate Conversion Coatings
 - What is an Optimum Coating Thickness/Weight and Why?
 - What are The Consequences Of Higher or Lower Coating Weight?
 - The Impact of Zinc Phosphate Grain Size on Corrosion Control/Adhesion
 - Selection and Application of Primers, Adhesion Promoters and Corrosion Inhibitors
 - Most Recent Surface Treatment Technologies
 - Electrodeposition Types, Processes And Applications
 - What Are The Controlling Parameters?
 - What Is The Optimum Bake Temperature?
 - How to Spot an Overbaked/Underbaked Electrocoat?
 - Conditions Impacting The Performance of Electrocoat

- **How to Design for Corrosion Control**
 - Material Selection
 - Process Variables
 - Intact and Non-intact Protection Methods

- **Corrosion and Corrosion Prevention**
 - Fundamentals of Corrosion
 - Corrosion Types and Mechanisms
 - Methods of Preventing Corrosion
 - The Effect of Coatings Variables on Corrosion

- **Corrosion Protection by Coatings**
 - How Coatings Protect and Why They Fail
 - Factors Affecting Corrosion Protection of Coatings
 - Selecting Coatings for Corrosion Protection
 - Approaches for Preventing Corrosion
 - Methods of Evaluating Corrosion Protection of Coatings

- **Selection, Properties and Application of Liquid Organic Coatings**
 - Performance Rating of Conventional and Compliant Coatings
 - Selecting Compliant Liquid Coatings
 - Coating Types and Properties
 - Possible Service Life Prediction
 - Recent Developments and Future Trends

- **Waterborne Coatings**
 - Understanding Waterborne Coatings
 - Performance and Durability of Waterborne Coatings
 - Special Considerations for Waterborne Coatings Application
 - Selection, Merits, Application and Process Variables
 - How to Convert to Waterborne Coatings

- **Powder Coating**
 - Current Status of Powder Coatings
 - When and Where to Use Powder Coatings
 - Advantages and Limitations
 - Powder Types and Properties
 - Selecting a Powder Coating and Application Methods
 - What does it take to Convert to Powder Coating
 - Performance and Troubleshooting

- **Coating Plastics**
 - Working with Plastics
 - Nature and Paintability of Plastics
 - Special Considerations for Coating Plastics: What to Watch For
 - Surface Treatment of Plastics and Composites
 - Selecting Coatings for Plastics
 - Requirements for Coating Defect-free Plastic Parts
 - Coating Application and Troubleshooting
 - Evaluation of Coatings on Plastics

- **Surface Defect Characterization and Prevention**
 - Sources and Examples of Defects
 - Types and Causes of Defects
 - Methods of Preventing Defects

- **Durability and Testing of Coatings**
 - Why Do Coatings Fail?
 - Factors Affecting the Performance of Coatings
 - Mechanisms of Paint Failure
 - Possible Methods of Coating Life Prediction
 - How to Extend the Life of a Coating
 - How to Test Coatings for Specific Applications
 - Evaluation of Coatings

- **Coatings Case Histories**