



***Coatings and Corrosion Control Technologies:
Materials and Application
CP-6605***

This workshop offers a sound assessment of the latest developments in materials, application methods, and process selection. The course will focus on the material properties of both coatings and substrates, their application, and the design of high performance, environmentally compliant coating operations. In addition, we will discuss corrosion fundamentals, methods of preventing corrosion with protective coatings, case histories, and troubleshooting approaches. The informal atmosphere emphasizes problem-solving discussions, while the "Learner Controlled Instruction" style will make it easy for you to obtain answers to specific questions.

WHO SHOULD ATTEND?

All manufacturing personnel dealing with decorative and protective coatings and corrosion prevention technology: chemists; process, design, design and specification engineers; quality control; technical service and sales. The course is appropriate for current users with limited to very good knowledge of coatings operations who need, or want, to learn fundamentals, current trends, and new technologies.

BENEFITS OF ATTENDING:

- Develop an overall understanding of coatings, corrosion prevention methods, and processes.
- Learn how to select coatings and become familiar with their properties, application methods, and cost.
- Gain valuable understanding of the durability of coatings, and learn how to improve their long-term performance.
- Learn how to save costs by implementing more efficient processes and judicious selection of materials.
- Receive unbiased technical opinions on what works, what does not, and why.
- Reinforce your mastery of troubleshooting and problem solving.

Course Outline

- **Adhesion of Coatings**
 - What is adhesion?
 - Requirements for good adhesion
 - Methods of promoting and maintaining adhesion
 - Effect of adhesion on the durability and corrosion resistance of coatings
- **Surface Pretreatment**
 - Surface nature and characteristics
 - Reasons for, and benefits of, surface pretreatment
 - How to select a proper surface treatment process
 - Selection and application of primers, adhesion promoters, and corrosion inhibitors
 - Mechanical and physical treatments
 - Conversion coatings – iron and zinc phosphate

- Recent surface treatment technologies and methods
- Anodizing treatment of aluminum
- **Electrocoating and Plating**
 - Corrosion protection via electrocoating
 - Electrodeposition types, processes and applications
 - Performance properties and economics
 - Corrosion protection via plating
- **How to Design for Corrosion Control**
 - Material selection
 - Process variables
 - Intact and non-intact protection methods
- **Corrosion and Corrosion Preevention**
 - Fundamentals of corrosion and corrosion control
 - 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 by coatings
 - Selecting coatings for corrosion protection (commercially available)
 - Approaches for preventing corrosion using old and new technologies
 - 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**
 - Performance and durability of waterborne coatings
 - Understanding of waterborne coatings
 - Special consideration for waterborne coatings application
 - Selection, merits, application and process variables
 - How to convert to waterborne coatings
- **Powder Coatings**
 - Current status of powder coatings
 - When and where to use powder coatings
 - Advantages and limitations
 - Powder types and properties
 - Selecting powder coating and application methods
 - What does it take to convert to powder coating
 - Performance and troubleshooting

- **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
 - Methods of coating life prediction
 - How to extend the service life of a coating
 - How to test coatings for specific applications
 - Evaluation of coatings

- **Coatings Case Histories**