



**Waterborne Coating Technology and Trends:  
Formulation and Application  
(CP-6626)**

**OBJECTIVES:**

This highly interactive course specifically deals with waterborne resin technology, waterborne coating technologies, and their formulation and properties. The resin chemistries used in architectural, industrial, automotive and related areas will be discussed in detail. Material classification, properties and starting point formulation using the most recent approaches of *Rational Formulation* for each industry will be developed and discussed, and performance criteria will be explained.

**WHO SHOULD ATTEND?**

This course is designed to provide technical information for paint formulators and manufacturers, industry suppliers, and users of coatings and paint at all levels. It is specifically recommended for chemists, formulators, raw material suppliers, processes, design and specification engineers, and quality control personnel.

**WHAT YOU WILL LEARN:**

- Gain an overall understanding of water-based resin and coating chemistries and formulations.
- Become familiar with the concept and application of the *Rational Formulation* approach.
- Receive unbiased technical information on properties of raw materials, resins and coatings.
- Gain in-depth knowledge of current waterborne polymers and coating technologies and future trends.
- Obtain latest technical information and receive *Rational Formulation* guidelines,

## **COURSE OUTLINE:**

### **I. Day One: Waterborne resin chemistry**

- A. Introduction to waterborne polymers and coatings.
- B. Waterborne resin types and properties.
- C. Guidelines and properties of resin selection for architectural, industrial, and automotive coatings.
- D. Water-reducible and dispersion resins: acrylic, alkyd, epoxy, polyester, polyurethane (PUD) and hybrid resins.
- E. Emulsion polymerization technologies, latex resin varieties and properties.
- F. Film formation and cure of waterborne coatings.

### **II. Day Two: Materials and formulation guidelines**

- A. Additives, pigments and their functions.
- B. The *Rational Formulation* concept.
- C. Technology specific additives, diluents and pigments.
- D. Formulating architectural, industrial, maintenance, and automotive coatings.
- E. Polyurethane, melamine/formaldehyde, epoxy, alkyd and air-dry technologies.
- F. Coatings for plastics, composites, wood, cement, and other materials
- G. Adhesion promoter and primer technologies.
- H. Half-day laboratory session: formulation and application.

### **III. Day Three: Formulation, enabling technologies, application, and evaluation**

- A. Adhesion of waterborne coatings.
- B. Corrosion control with waterborne coatings.
- C. Testing and evaluation.
- D. Electro-coat and special-purpose coatings.
- E. Durability and performance of waterborne coatings.
- F. Defect causes, identification and prevention.