

## Description

This two day course provides an in depth overview of the special features that distinguish waterborne technology from other generic types such as solvent borne, high solids etc. The course identifies the different markets for coatings and reviews the advantages and disadvantages of competing technologies relative to waterborne options. Case histories will be used to illustrate how the penetration into different markets is influenced by the current property mix, and what might be expected from technical developments and the influence of legislation. Major types of waterborne technology will be covered including waterborne dispersions ('latexes'), solutions and emulsions. Attention will be paid to mechanisms of film formation and the likely impact of film morphology on mechanical and optical properties. Formulation will be addressed with particular reference to the differences from classical solvent borne solution binders. An outline of processing and application issues will also be covered.

## Who Should Attend

This course has been designed to appeal to a wide cross section of interests. Some sections benefit from a knowledge of chemistry to university entrance standard.

## Contents

### Coating Binder Technologies

- Generic types and terminology
- Solution vs dispersion
- Solvent vs water
- Crosslinking vs thermoplastic

### Waterborne Technologies

- Insoluble aqueous polymer dispersions
- Soluble and partially soluble polymers
- Polyurethane dispersions
- Emerging technologies
- Emulsion and suspension polymerisation
- Alkyd emulsions
- Mixed and hybrid systems

### Wet Paint Properties

- Aspects of film formation
- Surface tension and surfactants
- Rheology and rheology control

### Market Overview

- Principle coating markets
- Penetration by competing technologies

### Case Histories

- Coatings for buildings
- Automotive coatings
- Furniture coatings

### Formulation Aspects

- Introduction to mixture theory
- CPVC in a waterborne environment
- Pigments and extenders for waterborne coatings (pH and the isoelectric point)
- Bio deterioration of waterborne coatings
- Important volume relationships
- Flocculation, classification and percolation in dispersed systems
- Colour and tinting

### Dispersion and Processing

- Dispersion principles
- Processing considerations