

## The Powder Coating Kitchen:

### Advanced Formulating Techniques

#### Course Description

PC Kitchen: Advanced Formulating Techniques is an advanced formulation short course held in the ChemQuest Powder Coating Research laboratory in Columbus, Ohio. This two-day course delves into more complex formulation techniques such as:

- Gloss reduction
- Hyper-durability
- Acrylics
- Low-temperature cure
- Chemical resistance
- High hardness
- Clearcoats
- Special effects.

Like the PC Kitchen Intro to Powder Coating Formulation course, Advanced Formulating Techniques includes both incisive lectures and exciting hands-on laboratory demos, including application to heat-sensitive substrates and alternate powder curing techniques such as IR and UV. This course is designed for the experienced coating professional with prior formulating background.

#### Day One

##### Morning

- 9:00 1 - Introductions and Course Overview
- 9:15 2 - Review of Binder Chemistries and Curing Mechanisms
- 10:00 3 - Manipulating Binder Chemistry for Performance – Functionality, Crosslink Density,  $T_g$ , Melt Viscosity
- 10:45 Break
- 11:00 4 - Acrylic Chemistry
- 11:45 Hands-on Lab Demo: Low Temp Powder Application to MDF
- 12:15 Lunch

**Afternoon**

- 1:00 5 - High UV Durability: Superdurables and Fluoropolymers
- 1:35 6 - Gloss Reduction: Different Methods for Different Binders
- 2:15 7 - Clearcoats
- 2:45 Break
- 3:15 8 - Formulating for Hardness and Chemical Resistance
- 4:00 Open Discussion

Dinner on your own or with your new friends

**Day Two**

**Morning**

- 8:30 9 - Formulating for Corrosion Resistance
- 9:00 10 - Low Temperature Cure: Thermosetting Options
- 9:45 11 - Processing Specialty Powders: When to Turn the Heat Up and When to Turn it Down
- 10:30 Break
- 11:00 12 - UV Curable Powder Coatings: The Ultimate in Low Cure?
- 11:30 Lab Demo: UV Curable Powders on Plastic Cured with IR and UV
- 12:00 Lunch

**Afternoon**

- 1:00 13 - Special Effects – Textures, Veins and Hammertones
- 1:30 14 - Special Effects - Pearls and Metallics
- 2:00 Break
- 2:30 Lab Demo: Spraying Metallics and Pearls: Blended vs. Bonded
- 3:30 Discussion and Wrap-Up

### **Recommended Attire**

Attendees should wear safety glasses and comfortable shoes/clothes suitable for lab activities such as powder coating lab test panels and evaluating coating properties.

### **Location and Nearby Hotels**

#### **ChemQuest Powder Coating Research**

1823 O'Brien Rd.  
Columbus, OH 43228

#### **Courtyard by Marriott (1.2 miles) – (614) 771-8999**

<https://www.marriott.com/en-us/hotels/cmhwt-courtyard-columbus-west-hilliard/overview/>

#### **Fairfield Inn (2.3 miles) – (614) 643-4300**

<https://www.marriott.com/hotels/travel/cmhwe-fairfield-inn-and-suites-columbus-hilliard/>

#### **Holiday Inn – (2.1 miles) - (614) 335-1150**

<https://www.ihg.com/holidayinn/hotels/us/en/columbus/cmhbi/hoteldetail>

#### **Hampton Inn – (2.2 miles) - (614) 851-5599**

<https://www.hilton.com/en/hotels/cmhwehx-hampton-columbus-west/>

## About Your Instructors

**Eric Casebolt** | [ecasebolt@chemquest.com](mailto:ecasebolt@chemquest.com)



An accomplished leader with a proven track record of providing viable and actionable solutions to organizational goals, Eric Casebolt joined ChemQuest in 2023. Eric's career started at Johnson Polymer Inc. and evolved to include numerous roles of increasing responsibility with BASF and Eastman Chemical Co. He has worked to develop and market many resin technologies and formulation additives for use in coatings, packaging, and construction applications.

In his most recent role as strategy manager for Eastman, Eric served as an internal strategy consultant for several of the company's global business units. He earned a bachelor's degree in chemistry from the University of Wisconsin Parkside, a master's degree in chemistry from DePaul University, and an MBA from Wake Forest University.

**Nathan Biller** | [nbiller@chemquest.com](mailto:nbiller@chemquest.com)



Nathan Biller started his career in the powder coating industry in 2001 with Jamestown Powder Coatings, joining Powder Coating Research Group in 2011 (PCR was acquired by ChemQuest in 2021). He soon emerged as the team's lead formulator, tackling complex formulation challenges in numerous industries, including transportation (outdoor-durable powders), medical instruments (clamping equipment for brain surgery), aerospace (low-temperature-cure powders for composites), injection-molded automotive trim parts (UV curable, highly metallic, and exterior durable), and architectural (hyper-durable powders).

As a member of the CQPCR leadership team, Nathan assists clients in navigating strategic and business challenges. In addition, his technical skills continue to lead to numerous technology development advancements.