



PTC Organics, Inc.

The Industrial Phase-Transfer Catalysis Experts

PO Box 575, Williamstown, New Jersey 08094 USA

Inquiries? Click [here](#)

2-Day Course - In-House "Industrial Phase-Transfer Catalysis"

Since 1996, 35 highly satisfied companies in the US, UK, Germany, Switzerland, Austria, Sweden, Holland, Italy, Spain, Hungary, Israel and Ireland have achieved lower cost, higher performance, greener chemistry, and faster, more effective R&D after conducting the in-house course "Industrial Phase-Transfer Catalysis" in the convenience and privacy of their own conference rooms.

Course Overview

The course "Industrial Phase-Transfer Catalysis" is highly focused toward the needs of industrial organic chemists. The emphasis is on applying the fundamentals of PTC to improve hundreds of organic chemical reactions and enhance productivity, quality, safety and environmental performance of real world manufacturing processes for organic chemicals and polymers. Surprising techniques are disclosed and illustrated by example to enhance process and reaction performance.

Course Content

Overview & Mechanism

- PTC Principles and Industrial Overview
- Mechanism, Understanding Interactions and Kinetics

Choosing Process Parameters

Choosing Catalyst

- Structure-Activity Relationships
 - optimizing reactivity
- Practical Aspects of Catalyst
 - effective catalyst separation & recycle, stability and thermally stable catalysts, commercial availability, toxicity, "Third Phase"

Choosing Solvent

- Extremely flexible choice of solvent, criteria, practical and theoretical considerations, Solvent-Free

Choosing Anions, Leaving Groups and Counterions

Choosing and Controlling Hydration

- How to dramatically increase & control reactivity

Agitation

Practical Guidelines

- Evaluating and optimizing new potential PTC applications
- Optimizing reactivity, catalyst separation & thermal stability simultaneously
- Achieving resource-efficient R&D in PTC development
- Patentable PTC opportunities
- Identifying improvement opportunities in the plant and lab



Applications - Reaction conditions and high performance achieved are described for **>200 Reactions**

Strong Base Reactions

- C-Alkylation (& Chiral)
- O-Alkylation
- N-Alkylation
- S-Alkylation
- Dehydrohalogenation
- Michael Addition
- Aldol Condensation
- Wittig, Darzens
- Carbene Reactions

Nucleophilic Substitutions

- Esterification
- Transesterification
- O-, N-Acylation
- Cyanide
- Azide
- Fluoride
- Iodide, Bromide
- Thiocyanate
- Hydroxide, Hydrolysis
- Other nucleophilic aliphatic & aromatic substitutions

Oxidation
Hypochlorite
Hydrogen Peroxide
Permanganate
Other oxidizing agents
Epoxidation & Chiral Epox.

Reduction
Borohydride
Hydrogenation
Transition metal co-catalysis
Carbonylation
Other reactions



Course Manual

Each participant receives a 200+ page PTC manual and supplement that includes not only the updated applications and theory, but also includes the guidelines for identification, evaluation and optimization of new PTC applications. The manual includes more than 200 organic PTC reactions and group exercises. Additional subjects are covered of great interest to industrial chemists such as catalyst separation and recycle, resource-efficient PTC R&D and future patentable PTC technologies.

Facility Requirements

Your company must provide a training room, wide tables for participants, projector (beamer), screen and flip chart or writing board with markers.

Course Schedule

Training on the first day is from 8:45 to 5:00 and from 8:45 to 4:30 on the second day with 15 minute breaks at 10:30 and 2:30. Coffee and/or refreshments should be provided by company for the participants for 15 the minute breaks. Lunch breaks will be 12:00-1:15. Logistics should allow for participants to return promptly to the training at 1:15, preferably, lunch should be provided by the company to the participants on both days in or near the training room. **An optional highly effective third day for reviewing current projects under secrecy agreement** may be contracted at additional charge. Direct application of the course material to current projects typically results in immediate R&D performance achievements!

Note: The course must be conducted **LIVE** and **IN-PERSON**. The course is NOT allowed to be recorded by video or audio and we no longer offer participation in the course by videoconference.

Fees

\$15,000 up to 10 participants
\$19,500 for 11-20 participants
\$26,000 for 21-30 participants

In addition, your company will reimburse reasonable travel expenses for Dr. Halpern (airfare, hotel, meals, other transportation, etc.). These fees include training and manuals. Course dates will be reserved upon prepayment of \$1,000, at least 30 days before the course. Balance of fees and travel expenses will be paid within 30 days of course completion.

Ratings by Course Participants

Thirty five in-house and 23 public courses "Industrial Phase-Transfer Catalysis" have been conducted in the US, UK, Germany, Switzerland, Austria, Sweden, Holland, Italy, Spain, Hungary, Israel and Ireland since 1996 with reported customer impact of several million \$€! Overall course evaluations score an average of 4.5 out of 5.0 and >98% answer "yes" in response to the questions: "Would you have performed past projects differently if you took this course earlier?" and "Would you recommend this course to your colleagues?" Highly satisfied in-house course customers include well known pharmaceutical, agrochemical, dye and other specialty and fine organic chemical manufacturers.

Inquiries & Reservations

[CLICK HERE TO CONTACT US TODAY!](#)

- ◆ **Improve Process Performance**
- ◆ **Achieve Highly Effective & Rapid Process R&D**