

## Registration Form

Offering # **0805-401**

### Emulsion-Suspension Technology

19–21 May 2008 • Amsterdam, The Netherlands

**Priority Code:** **520**

(Please use this code when registering)

Dr./Mr./Ms. \_\_\_\_\_  
Surname Given Name

Job Title \_\_\_\_\_

Company/Organization \_\_\_\_\_

Department/Mail Code \_\_\_\_\_

Mailing Address \_\_\_\_\_

Postal Code \_\_\_\_\_ City \_\_\_\_\_ Country \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail Address \_\_\_\_\_

How did you learn about this course?

Direct Mail  Colleague  Website  Other

## Tuition and Payment Methods

**Early Registration (Save \$200)** U.S. \$ **2345** / \$ **2235\***  
(Must register and pay by 24 March 2008) (Group Rate)

**Regular Registration** U.S. \$ **2545** / \$ **2435\***  
(Group Rate)

Tuition payable in US funds **net of all charges** includes luncheon, breaks and course notes.

Payment is due prior to course start date. If payment has not been received two weeks before the course, a credit card will be required to guarantee admittance.

\***Group Rate** is for two or more enrollments registering at the same time, from the same company, for the same course.

**Send Invoice** (POs must be received in advance of course)

Purchase Order # \_\_\_\_\_

**Check** (payable in U.S. funds to The Center for Professional Advancement)

**Bank Transfer** (Pay by Bank Transfer to Account No. 62.62.46.628 at ABN-AMRO Bank N.V., Postbus 407, 1000 AK Amsterdam, The Netherlands. The course no. (above) and participant's name must be included on bank transfer.)

**Credit Card**  Visa  MasterCard  American Express

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

Cardholder Name \_\_\_\_\_

Signature \_\_\_\_\_

## 3 Ways To Register

- Log on to [www.cfpa.com](http://www.cfpa.com)
- Fax to: +31.20.620.21.36
- Mail: **The Center for Professional Advancement (CfPA)**  
Oudezijds Voorburgwal 316A  
1012 GM Amsterdam, The Netherlands

## General Information

**Discounts/Rates:** Early registration discount requires payment at time of registration and before expiration or regular tuition will apply. Group Rate is for two or more enrollments registering at the same time, from the same company, for the same course. Multiple discounts not applicable.

**Cancellations/Substitutions:** All cancellations are subject to a \$150.00 processing fee. Applicants may cancel up to two weeks prior to the course start date for a refund. If less than two weeks, a credit will be issued that can be used towards a future course up to one year from the date of issuance. No refunds or credit will be issued for those who do not attend the scheduled course and/or cancel less than two working days before the start date. Substitutions are permitted at any time. If for any reason, CfPA decides to cancel this course, we are not responsible for airfare, hotel or other costs incurred by the registrant. Program content, schedule and instructors are subject to change without notice.

**Confirmation Letters:** Before each course begins, all registrants will receive written confirmation including detailed information regarding course location. If confirmation is not received two weeks prior to the course please contact us.

For those requiring visas, confirmation letters will not be sent until payment is received.

Please note: **English** will be used in all lectures and course notes.

For our full terms and conditions, visit [www.cfpa.com](http://www.cfpa.com).

## Courses of Interest

- **Cosmetic Product Formulation**  
course id# 1350
- **Gums and Hydrocolloids**  
course id# 1019
- **Industrial Rheology**  
course id# 1025
- **Ingredients for Cosmetics and Toiletries**  
course id# 971
- **Mixing of Liquids and Complex Materials**  
course id# 1115
- **Pathways to Skin Penetration**  
course id# 2149
- **Skin Product Development**  
course id# 1050
- **Surfactants, Colloids and Interfaces**  
course id# 476

## Who We Are

The **Center for Professional Advancement (CfPA)** is the largest accredited technical training organization in the world with a curriculum of approximately three hundred and fifty short courses in 18 industries including Pharmaceutical, Biotechnology, Medical Device, Chemical, Cosmetics, Food and more.

Since our founding in 1967, we have successfully trained nearly a half million people worldwide in topics ranging from basic and introductory concepts to new advances and cutting-edge technology, and current U.S. and European regulations. CfPA courses are offered in a variety of formats – Public offering, Client Site and Online- to fit you or your company's training needs.

## Accreditations



The **Center for Professional Advancement** has been reviewed and approved as an Authorized Provider (#640) of continuing education and training programs by the **International Association for Continuing Education and Training (IACET)**. **Continuing Education Units (CEU)** will be awarded for participation in this course at a rate of 0.1 CEU per contact hour. *CEU will be awarded only upon successful completion of the course, i.e., attendance at essentially all the formal sessions and submission of a course evaluation.*



The **Center for Professional Advancement (CfPA)** is accredited by the **Accreditation Council for Pharmacy Education** as a provider of continuing pharmacy education. **Continuing Education Units (CEU)** will be awarded only upon successful completion of the course, i.e., attendance at essentially all the formal sessions and submission of a course evaluation. The **CEU** rate is 0.1 **CEU** per contact hour; statement of credit will be mailed within six weeks. You will have an opportunity to evaluate your successful completion of these course objectives through a **Learning Assessment**. *This offering is Program# 716-000-05-142-L04*



**ASQ Certification:** ASQ Certified Quality Engineers, Reliability Engineers and Quality Auditors may earn recertification credits for attending this program, providing it is covered under one area of the body of knowledge in which they are seeking recertification or is job enhancement.

## The Center for Professional Advancement

### Europe Office:

Oudezijds Voorburgwal 316A, 1012 GM Amsterdam, The Netherlands  
Phone: +31.20.638.28.06 • Fax: 31.20.620.21.36  
E-mail: [amsterdam@cfpa.com](mailto:amsterdam@cfpa.com)

### U.S.A. Headquarters:

P.O. Box 7077, East Brunswick, NJ 08816-7077  
Phone: 732.238.1600 • Fax: 732.238.9113  
E-mail: [info@cfpa.com](mailto:info@cfpa.com)

[www.cfpa.com](http://www.cfpa.com)

**Register by 24 Mar and SAVE \$200**

**19–21 May 2008**  
**Amsterdam, The Netherlands**

# Emulsion-Suspension Technology

Applications in the Pharmaceutical, Device, Cosmetics and Personal Care Industries

## Course Topics Include:

- Formulation of Suspensions
- Theory of Emulsions-Stability
- Microemulsions

Co-Directed by:

**Dr. Stanley L. Hem**  
Professor of Physical Pharmacy,  
Purdue University

and

**Dr. Norman D. Weiner**  
Professor of Pharmaceutics,  
University of Michigan

Celebrating  
**40**  
YEARS  
1967-2007



**CfPA**

The Center for Professional Advancement  
Accredited Technical Training Worldwide

[www.cfpa.com](http://www.cfpa.com)

## Who Should Attend

This program will benefit personnel in the pharmaceutical, cosmetic, personal care, household products and food industries including:

- Scientists
- Technologists
- Engineers
- Product planning
- Development personnel
- Quality control
- Regulatory affairs specialists
- Pilot plant
- Production research

## Learning Objectives

Upon completion of this course, you will be able to:

- Apply the basic concepts of emulsions and suspensions
- Design products that have desired properties
- Devise tests to ensure the performance
- Test the stability of your products

## Course Description

This course emphasizes the application of emulsion and suspension principles to the solution of practical, technological problems in the preparation and evaluation of pharmaceutical, cosmetic and related personal care products. Throughout the course, the interrelationship of the many specialty areas involved in emulsion and suspension products will be stressed. Newer technologies such as microemulsions and liposomes will be discussed. A blend of scientific principles and practical technology will be presented with special attention to the conceptual model of the oil-water interface as the basis for emulsion design. Techniques for studying the solid-liquid interface will be presented and applied to physicochemical problems which arise in the development of suspensions. Processing problems, with particular emphasis on scale-up, will be discussed.

## Emulsion-Suspension Technology

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### COURSE OUTLINE

#### first day

##### 08:00: Registration

##### 08:30–10:00:

##### Principles of Surface Chemistry:

- Orientation at interfaces
- Measurement of surface and interfacial tension
- Properties of micelles

##### 10:15–11:45:

##### Theory of Suspensions:

- Content uniformity
- Rate of settling
- Mechanisms for producing a surface charge
- Diffuse double layer

##### 12:45–14:15:

##### Theory of Emulsions—Physical Properties:

- Mechanisms of emulsification
- Role of the emulsifier

##### 14:30–16:00:

##### Theory of Suspensions:

- Interparticle forces
- Dispersed, flocculated and coagulated suspensions
- Experimental confirmation of DLVO theory

#### second day

##### 08:30–10:00:

##### Theory of Emulsions—Stability:

- Reversible and irreversible instability problems

##### 10:15–11:45:

##### Formulation of Suspensions:

- Stokes Law approach
- Flocculation
- Rheology
- Structured vehicle approach

##### 12:45–14:15:

##### Liposomes—Potential for Commercial Application:

- Methods of preparation—Characterization
- Stability
- Advantages and disadvantages of using liposomal systems in various industrial settings

##### 14:30–16:00:

##### Effects of Surface Charge on Properties of Suspensions:

- Determining surface charge
- State of aggregation
- Freeze-thaw stability
- Adsorption
- Mixtures of oppositely charged particles

#### third day

##### 08:30–10:00:

##### Concentrated Suspensions:

- Inhibiting particle interactions
- Electrostatic repulsive force
- Dispersing agents
- Steric repulsive force
- Block co-polymers
- Theta temperature
- Freeze-fracture microscopy

##### 10:15–11:45:

##### Microemulsions:

- Theoretical considerations
- Emulsified or solubilized micellar system
- Interfacial properties
- Kinetic features
- Stability

##### 12:45–14:15:

##### Avoiding Surprises When Formulating Suspensions:

- Particle growth
- Wetting
- Hydrating polymers
- Surface acidity
- Clays used in suspensions
- Testing suspensions

## Course Co-Directors

**Dr. Stanley L. Hem** is a Professor of Physical Pharmacy at the School of Pharmacy and Pharmacal Sciences, Purdue University. He received his B.S. in Pharmacy from Rutgers University and a Ph.D. from the University of Connecticut. Upon graduation in 1965, he joined the Pharmacy Research and Development Division of Wyeth Laboratories where he was involved in the formulation of liquid and semi-solid products. He joined the faculty at Purdue University in 1969. While at Purdue, Dr. Hem has been active in both teaching and research. His teaching efforts have been recognized by the students who have, four times, voted him the Henry Heine Outstanding Teacher Award. In addition, he received the 1991 Research Achievement Award in Pharmaceutical Technology from the American Association of Pharmaceutical Sciences for his contributions to suspension technology.

**Dr. Norman D. Weiner** is a Professor of Pharmaceutics at the College of Pharmacy, University of Michigan. In both teaching and research, he emphasizes a conceptual, basic approach to the solution of theoretical and applied problems. His teaching responsibilities include basic pharmaceutics and specialized graduate level courses in surface chemistry, dispersed systems and novel drug delivery systems, with an emphasis on liposomes.

Also very active in research, he has published over 125 original research papers as well as review articles and book chapters in the areas of surface chemistry as related to biological activity and formulation development. His research in the effects of formulation on efficacy of a wide variety of products is supported by the National Institutes of Health and by the pharmaceutical and cosmetic industries. He consults on a regular basis for a large number of pharmaceutical, cosmetic and personal care companies. Dr. Weiner received his B.S. degree from Brooklyn College of Pharmacy and a Ph.D. in Pharmaceutics from Columbia University. He taught at Columbia University until 1972 when he moved to his present location at the University of Michigan.

## Course Location

This course will be held at the **Park Plaza Victoria Amsterdam Hotel**. The hotel is holding a limited block of rooms at a reduced rate for course participants. To obtain the preferred rate, you must inform the hotel that you are registering for this course. To ensure accommodations, reservations must be made at least four weeks prior to the course.

**Park Plaza Victoria Amsterdam Hotel**  
Damrak 1-5  
1012 LG Amsterdam, The Netherlands  
Phone: +31/20/62.34.255  
Fax: +31/20/62.52.997

## Client Site

Training at your site and at your convenience. For further information, please contact **Client Site** Programs: Direct Dial (USA) +1/732.238.1600, ext. 4549; or fax +1/732.238.9113; or E-mail [clientsite@cfpa.com](mailto:clientsite@cfpa.com).

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