Spray Drying: Design and Operation

Location: Your Computer ID # 2705

WHO SHOULD ATTEND

Plant process and design engineers and scientists who are employed by the chemical, petrochemical, biochemical, food, pulp and paper and other high tech industries and who are involved with spray drying would benefit from this course. Engineers involved in specialty chemical manufacture, reactor & pilot plants, process and project design, waste processing, food processing, pulp and paper processing and waste minimization should also attend.

LEARNING OBJECTIVES

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

- Explain the fundamentals of spray drying and the practical design and operation of spray dryers
- Select the proper inlet and outlet temperatures
- Improve drying operations
- Select the spray dryer design needed for their process
- Perform the basic dryer calculations
- Increase plant throughput and product quality

COURSE DESCRIPTION

This 90-minute accredited online training focuses on spray drying and dryer operations which occur in processing in numerous industries. Discussion will include general aspects of spray drying including the types and applications and their advantages and disadvantages. Dryer calculations, atomization and particle size will be addressed along with drying, air flow, evaporation and heating rates. This training will include opportunities for learning assessment.

To receive the maximum benefit from this training, the course director recommends that participants attend the related course, Spray Drying: Advanced Specialty Topics-ID# 2706

Review of Learning Objectives

Module 1: General Aspects of Spray Drying
- Applications
- Advantages & Disadvantages
- Surface Area
- Steps in Spray Drying
- Atomization
- Particle Size
- Cocurrent & Countercurrent Operations
- Chamber Design
- Drying Rates
- Product Discharge
- Types of Spray Drying
- Open, Closed Cycles
- Collectors

Module 2: Semi Closed, Self Inertizing & Two Stage Layouts
- Semi-closed Systems
- Self-inertizing Systems
- Pharma Layouts
- Environmental Design
- Two Stage Systems
- Fluid Beds
- Spray Beds
- Fines Recycle
- Atomization
- Operating Variables
- Feed
- Inlet & Outlet Air Temperatures

Module 3: Additional Information and Comments
- Atomization
- Effects of Different Variables
- Nozzle and Rotary Atomizers
- Two Fluid Nozzles
- Chambers and Residence Times
- The Other Humidity Chart
- Dryer Calculations
- Evaporation Rates
- Air Flow Rates
- Heating Rates

Question and Answer Session

For more information see reverse side
COURSE DIRECTOR

Dr. Gary Tatterson, Professor, Chemical Engineering, North Carolina A&T State University

Dr. Gary Tatterson is a professor of Chemical Engineering at North Carolina A&T State University (NC A&T SU) where he teaches full time. Specializing in plant design and various unit operations, Dr. Tatterson has taught individual specialized courses in drying and has been teaching and consulting since 1972.

His scaleup and two plant design courses at NC A&T SU follow a philosophy of fundamental and practical understanding that is important to the proper operation of multiphase processes.

Gary Tatterson has written extensively in the area of multiphase processing and the application the theories of fluid and solid mechanics to such work. He has over 40 refereed publications and three texts. One text is on scaleup of processes in general.

TUITION AND REGISTRATION

TUITION* – Single Rate: U.S.$295.00 per person Group Rate: U.S.$245.00 per person**

Register at www.cfpa.com. Enter Course ID# 2705 into Search. To register click Register Now.

For Questions and Information call Customer Service at 732-613-4500.

Please Note: Multiple participants are not authorized to share access provided to a single registrant, a single dedicated seat license must be purchased for each individual. CfPA reserves the right to cancel access or collect the group rate payment if this requirement has been violated. Only registered participants will receive accreditation.

System Requirements: PC-based attendees: Windows(R) 7, Vista, XP or 2003 Server/Macintosh(R)-based attendees: Mac OS(R) X 10.4.11 (Tiger(R)) or newer

ACCREDITATIONS

The Center for Professional Advancement has been approved as an Accredited Provider by the International Association for Continuing Education and Training (IACET), 12100 Sunset Hills Rd., Suite 130, Reston, VA 20190. In obtaining this approval, the Center for Professional Advancement has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. The Center for Professional Advancement is therefore authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards. CEU will be awarded for participation in The Center for Professional Advancement’s courses at the rate of .1 CEU per contact hour. CEU will be awarded only upon successful completion of the entire course and 70% accuracy in the required Learners’ Assessment. This course offers a total of 1.5 contact hours or .2 CEUs (CEUs rounded up).

WHO WE ARE

The Center for Professional Advancement (CfPA) is the largest accredited technical training organization in the world with a curriculum of approximately four hundred and fifty short courses in 15 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.

For more information visit our website at www.cfpa.com

COURSES OF INTEREST

• Agglomeration I: A Practical Approach to Particle Size Enlargement (First in a two-part series)—An Online Course course ID# 2436

• Agglomeration II: Tumble Agglomeration Basics (Second in a two-part series)—An Online Course course ID# 2437

• Atomization and Spray Drying: Applied and Practical Approach course ID# 2637

• Mixing of Liquids and Complex Materials course ID# 1115

• Pilot Plant and Scale-up Studies course ID# 1882

• Process Scaleup for Non-Engineers—An Online Course course ID# 2563

• Spray Drying: Advanced Specialty Topics—An Online Course course ID# 2706

ABOUT ON-DEMAND:

Our pre-recorded on-line training courses are available for viewing at your convenience at your computer. Register for a CfPA on-demand course, your registration will be processed within two (2) business days, after payment and registration are complete you will receive an email from onlinetraining@cfpa.com with your password to access the on-demand course. You will have two (2) business days to view the course. You MUST complete all polls and the course evaluation to receive your accreditation certificate for this course.

TERMS AND CONDITIONS

*Payment: Tuition payable in US funds net of all charges. Payment is due at time of registration in the form of a credit card. Please contact CfPA’s Customer Service for other payment options.

**Group Rate: The Group Rate is for two or more enrollments, up to five registering from the same company at the same time. For groups of six or more, please contact Customer Service for group pricing.

Cancellations/No Show: “Live” – Registrants may cancel up to two working days prior to the course start date and will receive a letter of credit to be used towards a future course up to one year from date of issuance. No credit will be issued for no-shows and/or cancellations less than two working days prior to the course. “On-Demand” – No refund or credit will be issued for no-shows and/or cancellations of on-demand training courses. CfPA is not responsible for any outside related costs incurred by registrant’s cancellation.

ID 2705