

# **Developing Microwavable Products for Quality and Safety**

*An International Microwave Power Institute Short Course*

**Get the Answers YOU Need to your toughest Product development questions on...**

## **MICROWAVE HEATING FUNDAMENTALS**

- \* How a microwave oven heats food
- \* The important properties of foods that influence heating
- \* How to use a microwave oven to develop products

## **DEVELOPING MICROWAVABLE PRODUCTS**

- \* Product Formulation: Where to start?
- \* What type of package your product needs
- \* How to avoid the pitfalls of product development
- \* How to test products accurately

## **MEASURING TEMPERATURE**

- \* What the principles of temperature measurement encompass
- \* Devices for measuring temperatures of microwaved foods
- \* Tips for accurate temperature measurement

## **SAFETY MEASUREMENTS**

- \* Tips for ensuring the safety of microwavable food products
- \* Human safety in electromagnetic fields
- \* How to measure potential leakage from MW ovens

**April 22-23, 2010**

**The Sofitel Minneapolis**

# Developing Microwavable Products for Quality & Safety

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Sofitel Minneapolis, Minnesota

Each year, the International Microwave Power Institute (IMPI) hosts a special unique short course for food and consumer product professionals seeking an introduction to microwave science and product development. The intensive and interactive course is designed to introduce the professional to electromagnetic fields, the microwave oven and basic microwavable food and packaging technology. Due to the high involvement of participants, registration is limited and available only on a first-come, first-served basis.

This year, IMPI has added new topics, including dielectric property and temperature measurements, packaging technology, product testing and the requirements for a microwavable foods laboratory. For the many participants who have participated in the Introduction to Microwave Science courses in the past, this new course plan allows you to increase your knowledge of microwave oven technology and microwavable product development and testing. For those who are new to microwaves, we continue to offer the fundamentals of microwave science in an optional pre-course introductory session. By attending the course, you will have the science and foundation needed to continue through the entire short course.

## About our Expert Presenters

**David Baron** has worked in electromagnetic field safety for 25 years, focusing on hazard measurement and standards development. He provides independent consulting services in electromagnetic safety, and is a registered electrical engineer.

**Peter Pesheck** earned a BA in Chemistry and a PhD in Biochemistry, both from the Univ. of Minnesota. He joined General Mills in 1978 and has worked there since 1983 on various aspects of microwave product and package development. He has collaborated on numerous US and international patents related to microwave foods and packaging.

**Bob Schiffmann** has been working with microwave heating and ovens for 50 years and has been an independent consultant for nearly 40 years. During that time he has developed many well known microwavable food products, packaging systems and industrial applications, and is expert of product testing. He has taught many international courses on all aspects of microwave technology. He has 30 US patents and many microwave-related publications.

## Our Venue: Sofitel Minneapolis

Discover the ultimate in comfort, elegance and style at Sofitel Minneapolis, a Bloomington hotel that reflects the well-known Sofitel art de vivre. Its attractions include superb service and impeccable attention to detail, a beautiful lobby-atrium, and an award-winning restaurant, Chez Colette. The four-star Minneapolis hotel is conveniently accessible to the Minneapolis St Paul International Airport and the Mall of America. Complimentary airport transportation is provided for your convenience.

**Reservations:** In a special agreement with IMPI, **Sofitel is pleased to extend our guests a discounted rate of \$119.00 per night for single or double rooms reserved prior to March 31, 2010.** To make your reservation, call (952) 835-1900 and request the room rate for the "IMPI Microwave Product Development Short Course."

Minneapolis is a progressive destination with a dynamic vibe and a whirlwind of creative energy. Here, you'll find all the attractions, events and excitement of a major metropolitan area, without the hassles. Looking for happy hour at the hot new spot, tickets to the Guthrie Theater or late-night plans to enjoy live music? No problem. Take it all in: amazing theater, world-class museums, sports galore, picturesque strolls in a green, urban environment. Minneapolis is compact, easy-to-navigate and affordable, so you'll squeeze a lot into your visit.

# Schedule of Sessions

## Thursday, April 22

**9:00 a.m.**

### **Electromagnetic Fields and their Interactions with Matter**

This session will introduce the basic science of electromagnetics, including:

- Introduction to electromagnetic fields
- Interactions of electromagnetic fields with matter, and
- General dielectric properties.

**10:30 a.m.**

### **The Microwave Oven and Food Technology**

The course will drill down to focus on how the science applies to food technology, including:

- How microwave differs from Conventional heating
- Introduction to penetration depth
- Origins of non-uniform heating

**1:15 p.m. Networking Lunch**

**1:15 p.m.**

### **Measuring Dielectric Properties**

All foods have different dielectric properties and these change with temperature, moisture content and more. Different procedures are required for dense & porous solids, liquids, powders, etc.. Learn about the equipment and techniques required to measure these properties.

**2:00 p.m.**

### **Developing a Successful Microwavable Product**

There is no more difficult product development challenge than a successful microwavable product. We'll examine the challenges and the traps that the developer faces. But, you learn how to deal with these and what ingredients and techniques can lead to this product goal from someone who has developed many successful microwavable products.

**3:30 p.m.**

### **ABCs of Microwavable Packaging**

Discover how to match the correct package with your new microwavable food. What is the difference between passive and active packaging? Plastic, paperboard, size, shape, volume - the right combination can make the difference between success and failure. What about metals? How does a susceptor work and how should it be used? We'll answer all these questions and more.

## Friday, April 23

**8:30 a.m.**

### **Creating a Microwavable Food Laboratory**

In order to develop and test successful microwavable products it is essential that the developer have the right tools available. We'll look at how many microwave ovens we need and why. We'll also look at how to measure and stabilize the performance of these ovens, and what other equipment should be in the food lab.

**9:15 a.m.**

### **Product Testing**

Many microwavable products have hidden problems that are revealed too late - once they are being heated by the consumer. You'll learn how to properly test your product in order to avoid these problems, that can otherwise lead to injuries or fires.

**10:15 p.m.**

### **Temperature Testing**

Measuring the temperature profile of your product is essential for successful product development. There are various techniques available: infrared cameras and sensors, fiberoptic probes, thermocouples and more. Learn how they differ and which are appropriate for your needs.

**11:15 a.m.**

### **Equipment Measurement and Safety**

Are microwave ovens safe, and if so, how is safe defined? What are the standards for measuring leakage and exposure? Learn the truth about the biological effects of non-ionizing electromagnetic energy and relevant safety standards, including measurement and evaluation of electromagnetic fields from both consumer and industrial microwave equipment. Determine the need for safety programs in your lab and basic principles of program development where appropriate.

**12:30 p.m. Working Lunch  
Q and A Session**

Now that you've learned the principles behind successful product development, challenge our experts with your questions. Bring a product you are developing and see if the experts can assist solving your problems. If you don't want to discuss a particular product problem in front of the group, our experts are happy to speak with you one-on-one.

**2:00 p.m. Short Course Concludes**

# IMPI Consumer Short Course Registration Form

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_ Phone: \_\_\_\_\_ Email: \_\_\_\_\_

## **REGISTRATION FEES** *(Includes refreshment breaks and lunches on Thursday and Friday)*

Early Bird Special February 1 through February 21!!

MEMBERS: \$ 395

NONMEMBERS: \$ 415

Registration Received March 1 - April 15

MEMBERS: \$ 415

NONMEMBERS: \$445

Student Registration (must provide full time student status verification): \$200

Onsite Registration (after April 15, per availability): \$ 495

## **DISCOUNTS** *(only ONE discount per eligible attendee):*

• Has another member of your company registered for this event? If so, enter 10% discount here: \_\_\_\_\_

• Is your company a corporate member? If so, enter 10% discount here: \_\_\_\_\_

## **MEMBERSHIP:**

### **Professional Membership: \$160**

Includes one subscription to the Journal of Microwave Power and Electromagnetic Energy (JMPEE) for one year (a \$250 value), a subscription to the IMPI e-newsletters, directory listing, online account, and discounts to all IMPI hosted meetings.

### **Student Membership: \$125**

Includes all of the benefits of Professional Membership as described above.

### **Corporate Membership: \$1,500**

Includes five, flexible (interchangeable within the company) IMPI Professional Memberships, including five subscriptions to JMPEE and unlimited subscriptions to IMPI e-Newsletters, as well as up to five IMPI online accounts for the corporation's employees. Bonus discounts on meetings and event for all employees and discounts on advertisements and partnerships with IMPI.

**TOTAL PAYMENT: \$ \_\_\_\_\_**

Check or money order enclosed (must be in USD drawn on a US bank)

Please charge my credit card:  Visa  Mastercard  American Express  Discover

Card Number: \_\_\_\_\_

Name on Card: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

Signature \_\_\_\_\_

Fax credit card payments to: (804) 559-4087 or mail any payment to:  
**IMPI Consumer Short Course, 7076 Drinkard Way, Mechanicsville, VA 23111**