

# Sealing Technology For Packaging Processes

## About the Seminar:

This two-day seminar is designed to give engineers a complete understanding of the various techniques for applying heat to flexible and semi-rigid packaging in order to achieve quality seals. A quality seal is critical for product protection from environmental conditions that can lower return levels, shorten shelf life, and hasten spoilage. Positive brand quality perception and tamper prevention also result directly from safe, well designed sealing. The seminar covers various sealing technologies, seal testing procedures, adhesive sealing, polymer film and foil characteristics and process / package validation.

## Who Should Attend:

Any personnel in the R&D, testing, process, design, fabrication and manufacturing of food, pharmaceutical, medical, cosmetic, chemical, veterinary or industrial product packaging will benefit from this unique course. Packaging, film and foil personnel will also benefit.

## Benefits of Attending

- ▶ Learn to choose the optimum sealing process for any situation
- ▶ Learn how physics and chemistry apply to producing a high integrity seal
- ▶ Learn the mechanics of heat sealing equipment and component interaction
- ▶ Learn which types of seals are acceptable in the marketplace
- ▶ Learn about the integration of sealing equipment into a packaging line
- ▶ View the heat sealing process through technical data, graphs and formulas

## Concepts Covered

- ▶ Thermal heat sealing behavior
- ▶ Impulse heat sealing
- ▶ Dielectric heating theory
- ▶ Ultrasonic welding
- ▶ Induction sealing



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## Course Syllabus

### DAY 1

#### Overview, Science and Math of Sealing

- Introduction
- Package Types that are Sealed
- Classification of Seals
- Commonly Used Sealing Polymers
- Packaging Material Forms Used in Sealing
- Seal Operating Conditions
- Polymer Science of Sealing & Seal Mechanisms
- Fusion vs. Peelable Seals
- Opening & Re-closeability Features
- Heat Transfer 1 - Getting Heat Into the Seal
- Heat Transfer 2 - Cooling the Seal
- Current Seal Research

#### Seal Energy Processes

- Heated Tooling Sealing
- Band Sealing
- Impulse Sealing
- Induction
- Dielectric Sealing
- Ultrasonic
- Spin Weld
- Hot Air / Gas
- Radiant
- Laser
- Cold / Cohesive Seal
- Solvent Welding
- UVSealing

### DAY 2

#### Testing & Evaluation of Seals

- Testing of Seals 1
- Testing of Seals 2
- Testing of Seals 3: Online Tests
- Lab Sealing & Testing Equipment
- Seal Curves

#### Ancillary Processes Affecting Seals

- Ancillary Processes Affecting Seals- Vacuum Packing
- Ancillary Processes Affecting Seals- Gas Flush
- Ancillary Processes Affecting Seals- Retort
- Ancillary Processes Affecting Seals- Hot Fill

#### Partially Sealed Package Manufacture

- Bag Making
- Pouch Making
- Tube Making

#### Filler/Sealers

- Band Sealers & Related Systems
- Pouch Filler / Sealers
- Cup & Tray Filler / Sealers
- Bottle Filler / Sealers
- Tube Filler / Sealers

#### Form Fill Sealers

- Overview of Form Fill Seal Machines
- VFFS Pouch / Bag Machines
- HFFS Pouch / Bag Machines
- TFFS Cup / Tray Machines
- HFFS Flo-wrap Machines
- HFFS Overwrap, Shrink Wrap
- Vacuum Sealers
- Skin Packaging Machines
- Zippers & Sliders
- Fitments

#### Troubleshooting

- Seal Defect Gallery
- Seal Troubleshooting Approach
- Sealing Stories