

## DAY 1

### SECTION 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

### SECTION 2 - 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

UV Sealing

## DAY 2

### SECTION 3 - TESTING & EVALUATION OF SEALS

Testing of Seals 1

Testing of Seals 2

Testing of Seals 3: Online Tests

Lab Sealing & Testing Equipment

Seal Curves

### SECTION 4 - 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

### SECTION 5 - PARTIALLY SEALED PACKAGE MANUFACTURE

Bag Making

Pouch Making

Tube Making

### SECTION 6 - FILLER/SEALERS

Band Sealers & Related Systems

Pouch Filler / Sealers

Cup & Tray Filler / Sealers

Bottle Filler / Sealers

Tube Filler / Sealers

### SECTION 7 - 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, Shrinkwrap

Vacuum Sealers

Skin Packaging Machines

Zippers & Sliders

Fitments

### SECTION 8 - TROUBLESHOOTING

Seal Defect Gallery

Seal Troubleshooting Approach

Sealing Stories