TechnoBiz Training

THERMOFORMING Training Week 2019

Managed by
Czuba Enterprises Inc.

16-18 October 2019, Anaheim, California, USA

Instructor: Dr. Jim Throne

SCHEDULE:

16-17 Oct 2019	Thermoforming (Thin & Thick Gauge) Principles & Practice
18 Oct 2019	Mold Design, Parts Design, and Troubleshooting

Thermoforming is a plastic process that begins with a sheet of plastic and ends with formed commercial parts. Along the way the sheet is heated to the plastic forming temperature and placed in a single-sided mold. Air is evacuated between the sheet and the mold either with vacuum or a combination of vacuum and external air pressure. When the sheet is sufficiently cooled, it is removed to a trim fixture where the part is removed from the plastic sheet around it. For thin sheet, the non-product plastic is recovered, reground and reprocessed into more sheet. This seminar begins with how thermoforming works and advances through why thermoforming works. A thorough understanding of the entire process should help attendees understand new polymers, new mold concepts and new advances in thermoforming technology so that they can deal with customers' new product demands and handle troubleshooting issues with aplomb.

Program Schedule

16-18 October 2019, Anaheim, California, USA

16-17 Oct 2019	Thermoforming (Thin & Thick Gauge) Principles & Practice
18 Oct 2019	Mold Design, Parts Design, and Troubleshooting
Each Day Time	8.30 am to 4.30pm

Program Content

Thermoforming (Thin & Thick Gauge) Principles & Practice (16-17 Oct 2019)

- What is Thermoforming?
- Sheet Extrusion Concepts
- What is Thermoforming Technically?
- Thermoformed Products : Thin-gauge & Thick-gauge
- Thermoforming Machine - Typical Elements
- Observations and Tests for Incoming Sheet
- Polymer thermoforming characteristics
- Sheet Heating Concepts
- Mechanical Properties during heating/ forming
- Regrind issues
- Thick Gauge Machine Concepts
- Thin Gauge Machine Concepts
- Sheet Heating
- Molds for Thermoforming - Types and Design
- Part Design
- Trimming
- Production Measurement and Control

Program Content

Mold Design, Parts Design, and Troubleshooting (18 Oct 2019)

THICK GAUGE MOLDS

- Selection Depends on Method of Making Mold
- Current Mold Manufacturing Methods
- Water line additions
- Surface finishing -Texturing
- Other Mold features – Cores, Mold Motion
- Removing large parts from mold
- Sheet edge clamp over mold
- Multiple parts on single mold
- Pre-stretching
- Thermoforming multilayer sheet
- Twin-sheet forming

THIN GAUGE MOLDS

- Thin Gage Part Design
- Mold Materials
- Mold cooling
- Mold design
- Lidded containers
- Design for large containers
- In-mold labeling – pluses and minuses
- Rim rolling
- Rigid for-fill-seal (RFFS)
- Downstream issues
- Other packaging methods using thermoforming

TROUBLESHOOTING

- Sheet Issues
- Excessive sag
- Partially formed parts – Multicavity
- Part-to-part weight variation
- Sticking parts
- Scuffing
- Thin walls – Plug issues
- Fuzz and fibers in trimming

Instructor

DR. JIM THRONE

Dr. Jim Throne is a Well - Known & Well-Experienced Plastics Processing Consultant from Dunedin Florida with more than 45 years experience. His consultancy focuses on advanced plastics processing technologies, including thermoforming, foam processing and rotational molding. He is a Fellow of the SPE, Fellow of IoM3 (England), and Chartered Scientist (England). He was SPE Thermoformer of the Year 2000. He received the first Lifetime Achievement Award from the SPE European Thermoforming Division in 2004 for his technical contributions to the international thermoforming industry. In 2004, he was inducted into the Plastic Pioneers Association. He has published ten books in polymer processing, including four in thermoforming and two in thermoplastic foam processing. He holds nine US patents, including two in thermoplastic foams and a fundamental one in thermoforming CPET. He has written more than a dozen technical book chapters and has published and presented nearly 200 technical papers. He was Technical Editor of SPE Thermoforming Quarterly and Editor of SPE Rotational Molding Division Newsletter. His BS is in Chemical Engineering from Case Institute of Technology. His MChE and PhD in Chemical Engineering are from University of Delaware

REGISTRATION FEE /PERSON

Thermoforming (Thin & Thick Gauge) Principles & Practice	:	1,200 US$/Person
Mold Design, Parts Design, and Troubleshooting	:	850 US$/Person
Both Courses	:	2,000 US$/Person

Remark: Registration fee includes training documents, lunch and refreshments. Payment is required with registration

Early Bird Discount: 10% discount for registrations before 31 August 2019
Group Discount: If 3 or more delegates join from the same organization for the same course, 10% discount will be offered on total registration fee

VENUE

This program will be held at the Hotel in Anaheim, California, USA. Registered delegates will be informed about the venue 30 days before the schedule.

HOW TO REGISTER?

Please download registration form at ***www.plastics-industry.org*** and send to ***Mr. Len Czuba***

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