

SPE Thermoforming Conference Innovation Briefs

Tuesday, September 1

2:30 p.m. – Keynote Stage (back of exhibit hall)

Terrence Woldorf
CMT Materials

Alternative Mold Materials for Heavy Gauge Thermoforming

As a result of more stringent quality requirements in the cut sheet segment, CMT Materials, Inc. engineers have developed a new materials and process that offers dramatic savings in mold making and provides results on par or better than aluminum for low-to-medium run projects.

The new syntactic foam material, released as HYVAC-LCM, utilizes a porous core covered by a layer of syntactic foam. Due to its low thermal conductivity, syntactic foam does not impart stress to the plastic as occurs with aluminum molds. No temperature control is required for the mold. When forming a part, the approach offers improved materials distribution in the same cycle time, while offering much longer tool life than wood, MDF or other toolboard materials.

3:00 p.m. – Keynote Stage (back of exhibit hall)

Sushant Jain
Processing Technologies International

Advanced Roll Stand Technologies

Features and benefits of PTi's all new configurable G Series Roll Stand will be presented. The Roll Stand features patented vertical nip height positioning and linear bearing roll stand traverse with digital positioning control. It includes servo motorized gap positioning and transfer roll coater. There is a compact inline or full length telescoping conveyor with low friction precision idler rollers. Included is a Roll Stand safety lock-out mechanism, light curtain safety exit at pull roll and LED task lighting for work area illumination. These and additional technologically advanced and operator friendly features of the configurable G Series Roll Stand will be discussed.

3:30 p.m. – Keynote Stage (back of exhibit hall)

Mark Gonyar
Klöckner Pentaplast

Simulation and Prototyping for Enhanced Package Design

The rigid packaging market today is demanding new packaging design concepts, enhanced performance solutions for thermoformed packaging, and for these new concepts to be delivered with greater speed and efficiency. To better support the needs of the market, finite element analysis (FEA) of the thermoforming process and the finished article structural integrity is playing an increasingly important role. FEA simulation tools provide a firm with the ability to execute multiple simulation scenarios with exceptional speed to predict the outcome of a new tooling design or new material selection for an existing tooling design. This includes package design considerations such as part

thickness and barrier performance, as well as crush, buckling and impact performance. These tools-combined with rapid prototyping capabilities which provide real life validation-can dramatically enhance the probability of success with a new concept, as well as reduce the speed and cost of line trials associated with multiple tool designs/re-designs. Personal CNC milling machines, a small format thermoforming line, and small format sealing equipment, combined with building relationships with industry and academic institutions, enables rapid prototyping to support validation of the simulation efforts and providing concept articles for customers.

Overall: Educating/updating the industry on tools that allow for more modernized packaging design and speed-to-market.

Wednesday, September 2

2:30 p.m. – Keynote Stage (back of exhibit hall)

Kirk Morrow

Dynamic Robotic Solutions

Advanced Trimming Techniques for Thermoformed Parts

The talk will discuss traditional trimming methods and their limitations. It will then detail advanced techniques, including CO2 laser for high speed accurate trimming. A case study will then be given on a hybrid system that handles router trims and laser cuts on a large thermoformed part.

3 p.m. – Keynote Stage (back of exhibit hall)

Jose Noriega and Marc-Wayne Anglin

ToolVu

ToolVu – Takes You Inside the Thermoforming Process!

Introducing “ToolVu,” the only *in-mold*, real-time quality and process control and evaluation system designed specifically for thermoforming addressing the needs of today’s data-driven manufacturing environment.

Scalable and customizable for your specific manufacturing needs, ToolVu is comprised of our patented hardware interface and software/GUI along with a suite of sensors designed specifically for your process. ToolVu can be adapted to any thermoformer without voiding any warranties or interfering with other imbedded machine control systems.

ToolVu enables you and your team to actually graphically see and quantify, in real-time, shot by shot, with 8 msec. resolution, the individual steps and interaction of forming process variables in both the time and magnitude domains.

ToolVu’s graphical output can be securely viewed remotely via a VPN; stored and retrieved for Quality Control analysis, enable process cycle time reduction, and create “reference templates” to assure fast, repeatable, process setup after every tool or product changeover.

3:30 p.m. – Keynote Stage (back of exhibit hall)

Steven Blazey

A. Schulman, Inc.

Formulation Strategy to Achieve Highly Colorable and Weatherable ASA

Highly chromatic colors are difficult to achieve in opaque weatherable polymers such as ASA. This presentation identifies several factors that influence ASA polymer opacity and discusses examples where highly chromatic weatherable colored products are achieved through the manipulation of polymers' refractive indexes and their formulation strategy. Different ASA formulations are compared for their chromatic absolute color intensity (Lab values) versus their calculated refractive index using the modified Gladstone-Dale equation to support the use of refractive index as a predictor for ASA colorability. These formulations were then further evaluated for their physical properties and Xenon weathering results to show the difficulties in balancing the key performance characteristics with the color intensity to achieve the best compromise for the application.