

## **Speaker Sessions**

### **Laser Marking and Machine Vision Codes for Product Security and Traceability**

*Scott Sabreen, The Sabreen Group*

Industrial manufacturing requirements for indelible direct part marking, containing machine vision codes, are growing exponentially. This demand is driven by the increasing requirements for component traceability and product unique identification (UID). Manufacturers are implementing strategies to establish traceability and thwart product tampering and counterfeiting. Direct part marking containing unique identification information necessitates such digital process technology as inkjet, dot peen, and laser marking. Lasers are the preferred method for many three-dimensional plastic products, because the process yields high-contrast indelible markings and does not require expensive consumable ink costs/solvents or post-curing. Lasers also can mark the smallest-size machine vision codes — important for micro-marking and when there is limited surface area on a part or component to be marked with alpha-numerics, logos, or schematic diagrams.

### **Wear Damage on Decorated Plastics — Techniques To Understand and Improve Your Testing**

*Alan Jaenecke, Taber Industries*

The objective of a laboratory test method is to define the approach that will permit an operator to obtain meaningful, reliable data. As materials and decoration techniques evolve, commonly used test methods to measure abrasion resistance of decorated plastics may no longer be sufficient. To ensure a robust product, it is essential to understand how to recreate and measure ‘real-world’ damage. This presentation will focus on a process to develop (or improve) test methods intended to quantify the resistance of surface wear on decorated plastics. Emphasis is placed on reducing common sources of test-procedure variation and advanced techniques to interpret and quantify the results.

### **The Application of Infrared Energy for Plastic Staking**

*Bill Reed, Extol, Inc.*

The practice of forming a molded stud or boss in order to retain another component is performed regularly. The benefits of eliminating glue, screws, and other fasteners were realized long ago. A non-conventional staking process called InfraStake, a relative newcomer in the business, continues to gain popularity. This presentation will discuss the infrared plastic staking process and how it uses light as the energy source and radiation (the safe type) as the heat transfer mode. The session will explain how the InfraStake device actually is a module wherein manipulated light energy evenly heats the stud, the integrated clamp secures the components, and a non-heated punch with a low-force air cylinder completes the modular package.

### **Designing for Digital**

*Matt Regan, CDigital*

We now live and work in a digital world. Understanding this reality, and reckoning with it, is mandatory for success in today’s marketplace. Increasingly, purchasers of product decoration are asking for seemingly unrelated services — faster turns, shorter runs, full

color, and variable data, which are descriptive of the digital process. While this technology is being incorporated into existing decoration programs, the full value cannot be realized until the concept of ‘designing for digital’ is understood and in practice. This presentation will explain that concept and the cultural change it can produce in companies that embrace this technology for digital heat transfers and other digital decoration.

### **Key Factors in Producing Superior Chrome-Plated Plastic Parts**

*Mike Barnstead, MacDermid, Inc.*

This presentation will explore the entire process of plating onto plastic, from resin selection, part design, molding, and racking, to the plating line processes and procedures. The session will elaborate on the potential of ‘green’ plating processes, the new types of plastics being evaluated, and potential markets. The presentation also will discuss new molding techniques that allow for more complex part configurations and built-in design.

### **Durable Clear Coat for Physical Vapor Deposition Applications**

*Kristy Wagner, Red Spot Paint and Varnish Co., Inc.*

Because of the growing environmental concerns with chrome plating, finishers have been requesting a ‘greener’ alternative. Coatings for decorative and automotive lighting PVD applications have long been a staple in the UV-curable coating industry. However, these coatings do not have the required durability to replace all chrome-plating applications — especially exterior. This presentation will address the numerous challenges associated with developing and processing a durable coating for multiple PVD metals.

### **New UV Hard-Coat System for Plastic Parts**

*Curt Baskin, Sun Chemical*

Sun Chemical’s Specialty Inks Group produces high-tech/automotive screen printing ink systems designed for use on automotive clusters, dials, and overlays. This presentation will focus on UV ink technology used for these applications, including the advantages of UV processing over solvent ink systems and how it will allow printers to take advantage of ‘going green.’ Applications, specification requirements, and processing techniques also will be presented.

### **Advancements in Paint-System Design**

*Dominic Zerilli, Thierica Equipment Company*

The growing challenge for manufacturers to stay competitive and profitable has led to new advances in paint-system design and service. The ability to dedicate a large system to one program or product is quickly becoming a thing of the past. Customer needs are changing, and paint systems are changing to suit. The flexibility to process parts with different geometries, materials, and application methods on one system has become a necessity. A new coating system designed specifically to address flexibility, modularity, and lead-time reductions is the focus of these advancements.

### **Adhesion Promotion Using Flame Plasma Surface Treatment — A Viable and Green Alternative to Conventional Methods**

*Joseph DiGiacomo, Flynn Burner Corporation*

This presentation will describe the theory behind natural gas, propane, or LPG-fired flame plasma surface treatment to promote adhesion of water-based inks, coatings, adhesives, labels, and other substrate laminates to polyolefin (PE & PP)-based substrates. Critical parameters in flame treatment include flame chemistry, flame geometry, plasma output, and distance of the burner to the part. The session will discuss the interrelationship between these variables and how to control them for optimum surface treatment. Troubleshooting and maintenance of flame plasma surface treating systems also will be presented.

### **Improving Adhesion Performance to Low-Surface-Tension Composite Substrates**

*Rory Wolf, Enercon Industries Corp.*

The growing demand for higher performance of plastic components in automobile, aerospace, medical, and electronic applications has made the job of formulating paints, adhesives, and coatings increasingly challenging. Composite plastics with low surface energies that also deliver high-strength, low-weight structural parts are becoming more prevalent. Adhesion to the surfaces of these composites, as well as between dissimilar high-performance materials, is increasingly being solved by atmospheric pretreatment technologies. This presentation will link specific atmospheric surface pretreatment improvements in adhesion to an array of composite and dissimilar materials.

### **Understanding the Perception of Color for Pad Printing and Other Decorating Methods**

*John Kaverman, Innovative Marking Systems*

Color is the most misunderstood property of decorating plastic parts. To perceive color, there must be a light source, an observer, and an object — components of color perception that are commonly referred to as the ‘color triplet.’ This presentation will identify the variables inherent to each component and explain how minimizing their influence on the perception of color is the key to successful color presentation on pad-printed and other types of decorated products.

### **Leading-Edge Film In-Mold Decorating Systems**

*Michael Kerr, Nissha USA, Inc.*

Nissha is a provider of precision printed films and a designer and builder of advanced in-mold decorating systems. This presentation will cover the wide array of film colors and patterns available today and how innovation is used to achieve unique wood-grains, translucent designs, 3D real metal appearances, and other technical patterns. How in-mold decorating systems can provide both manufacturing and cost benefits to conventional film-molding challenges also will be discussed. Advanced top-coat systems and other leading-edge film finishes and benefits will be presented as well.

### **Applying Lean Manufacturing Principles to In-Mold Decoration**

*Bob Travis, Vibrant Graphics*

As companies implement initiatives like Lean Manufacturing to stay competitive in a global marketplace, they often adopt new solutions, like in-mold decoration, to achieve their goals. Unfortunately, these initiatives often stop short of exploring how lean principles applied to new technologies can create even greater benefits. This presentation

will explore how in-mold decoration can be used to achieve the goals of lean manufacturing initiatives and venture into new areas where lean principles can be applied specifically to the in-mold decorating process to extract even greater benefits.

### **Day/Night Laser Marking Systems**

*Jake Wieloch, Rofin-Baasel*

When you combine today's vision technologies with a high-precision laser marking system, you can obtain a turnkey solution that can track and locate your part, orientate to it, and mark it in a defined location. This presentation will cover system and performance details involving the integration of lasers and vision technology. The session also will discuss applications, including the marking of metals and nonmetals and applying day/night graphics. In addition, new laser technologies that result in a compact, air-cooled, long operating life, and low consumable cost unit will be discussed.

### **Choosing the Best Plastic Joining Process for Your Application**

*Bill Heatherwick, Branson Automotive Group (N.A.)*

This presentation will help the designer solve the mystery of choosing the best plastic joining technology for each application. The session will provide practical guidance that can be used in making the process selection from the many joining technologies available. Process selection is not an absolute science, and more than one process could be appropriate. This presentation will cover how the 'best' process ultimately depends on the designer's specific needs, material, size, geometry, and functional requirements.

### **Optical Coating Applications on Automotive Polymers and Displays**

*Brian C. Wilson and Daniel J. Fiore, North American Coating Laboratories*

North American Coating Laboratories provides vacuum- and dip-applied thin-film coatings to polymer manufacturers and suppliers to the automotive industry. These coatings are predominantly deposited on polycarbonate and acrylic substrates assembled within the cockpit of commercial vehicles. In many cases, such vacuum-applied coatings as broadband antireflective treatments and polysiloxane dip-applied treatments improve the optical quality of polymers and extend the lifecycle of polymers in the field. This presentation will focus on the full spectrum of thin-film coatings that are currently being applied to automotive polymers, resins, and displays.

### **Considerations for Using Inkjet Technologies Within Plastic Molding Operations**

*John Lapp, FujiFilm Dimatix, Inc.*

This presentation will review the various inkjet technologies and provide the pros and cons of their use as production tools in injection molding or extrusion processes. Discussion also will include several criteria to assess if digital inkjet fabrication is appropriate, ranging from economic considerations to process practicality. Several commercial examples will be discussed, from high-end electronics device fabrication and industrial product decoration to digital surface coatings and commercial food decoration.

### **Latest Trends in Laser Welding Technology**

*Bill Cawley, Gentex Corporation*

Over the past few years the use of infrared lasers to weld plastics has increased significantly. In this presentation, recent advancements in laser welding will be discussed, including a summary of the basic principles of laser welding, developments in laser technology, improvements in laser absorbing materials, and advances in processing systems. The session also will cover developing market opportunities that are advancing laser welding technology.

### **Laser Marking on Plastics: Factors To Consider When Choosing a Laser-Based Marking Solution**

*Jeff Wojtkiewicz, Quantronix Corp.*

This presentation will cover laser marking of plastics, with emphasis on laser ablation of backlit buttons (daytime/nighttime buttons). Part of the technical content will include information pertaining to resins (acrylic and/or PC resins), types of black/white/colored paints (solvent, water-base, etc.), and paint process control as it relates to reproducible laser marking results. Special attention will be given to laser technology used in plastic and backlit button marking, with details on selecting the right laser technology (Nd:YAG, Nd:YVO<sub>4</sub>, Fiber) for each application. Another important consideration in a plastic marking laser system is the galvanometer-based, scanning beam delivery system (or scan head), along with the software to fully control the laser marking process. The session also will include other options and accessories used in laser marking systems.