

PLASTICS TECHNOLOGY for Non-Technologists

Managed by
**Czuba
Enterprises Inc.**

6-7 June 2018, TAMPA, FLORIDA

CROWNE PLAZA, TAMPA WESTSHORE

This 2-day training course is designed specifically for the people who wish to learn about plastics product manufacturing in a holistic approach, understanding plastic materials, plastics processes and ways to design plastic product and plastics testing. This program is also suitable for non-technical people, who are working in plastic industries. And also it is suitable for sales and service people related to plastics technology suppliers, machinery, resins, additives, mold makers and testing instruments. In four days of time, delegates will be able to learn about every key issue of plastic product manufacturing. Case studies of various types of plastic product manufacturing will be discussed in this program by selecting material and selecting process.

Trainer

Dr. Jim Throne

Dr. James Throne is a plastic processing consultant with more than 40 years experience, based in USA. He earned a BS in Chemical Engineering from Case Institute of Technology, Cleveland, Ohio, in 1959 and a Master's and PhD in Chemical Engineering in 1961 and 1964 from University of Delaware, Newark, Delaware. His 30 years of industrial experience includes positions as Research Associate at Amoco Chemicals and Research Fellow at BFGoodrich. His 10 years of academic teaching includes Professor of Polymer Engineering at University of Akron, Akron, Ohio. He started his consulting company in 1985. Jim has published and presented more than 200 technical papers in plastics processing. He has written ten technical treatises, four of which are in thermoforming. He has ten US patents. He was the Society of Plastics Engineers (SPE) Thermoforming Division Thermoformer of the Year in 2000. In 2004, the SPE European Thermoforming Division honored him with their first Lifetime Achievement Award. He is a fellow of SPE and of the British Institute of Materials, Mining and Manufacturing. Books written by Dr. James (in English): 1. Thermoforming; 2. Plastics Process Engineering; 3. Technology of Thermoforming; 4. Understanding Thermoforming; 5. Rotational Molding Technology; 6. Hollow Plastic Parts; 7. Thermoplastic Foam Extrusion - An Introduction; 8. Polymer Engineering Principles: Properties, Processes, and Tests for Design.

Program Outline

1. Introduction

- Before you start making your plastic products...
 - Is the plastic product a piece of a bigger plastic product?
 - What does the plastic product need to do?
 - How long does it need to do it?
 - How many do you need to make?
 - How much will it cost to make?
 - How much will it sell for?
 - What will it compete against?
 - What happens if it breaks?
 - How will you (or your customer) dispose of it?
- What are the general markets for plastic products?



2. Plastic Materials

- *General plastic material categories:* Thermoplastics & Thermosets, Amorphous and glass transition temperature, Crystalline and melting temperature, Commodity plastics, Engineering plastics, Special-purpose plastics, Biopolymers, Fillers, Reinforcing agents, Additives
- What about regrind? - The nature and source of regrind, Physical property change during recycling
- Customers, designers, manufacturers, resin suppliers, mold makers, machinery builders – a team effort
- Is price the most important physical property?

3. Making of Plastic Products (Shaping the plastic)

- *Continuous processes* - Extrusion, Blown film, Pultrusion, Compounding, Discrete processes, Injection molding, Thermoforming, Blow molding, Compression/Transfer molding, Rotational molding, Compounding
- *Ancillaries* - Molds, Dies, Take-off equipment, Calendaring, Laminating, Labeling, printing, decorating, Materials handling (dryers, feeders)

4. Matching process to application

- Is the process suitable to make your part? - Too big? Too slow? Too expensive? Technically inappropriate?

5. Critical Design Aspects

- Methods of designing - AutoCAD & Finite element analysis
- Part design details - Corners, edges, undercuts, Wall thickness variation, Bosses, ribs, gussets
- Decoration
- Joining and assembly
- Testing the design - Prototyping, Testing product to failure
- Quality control- SPC, DoE, Six Sigma, ISO, ASTM

6. Case Studies of Competitive Processes

- *Ubiquitous drink cup* (injection molding vs. thermoforming)
- *Plastic bottle* (blow molding vs. injection blow molding vs. reheat blow molding)
- *Fuel tank* (blow molding vs. assembled injection molding vs. rotational molding vs. twin-sheet thermoforming)

- *Ear protection device* (injection molding vs foam extrusion vs. rotational molding)
- *Pipe* (coextruded double-wall vs foam core)
- *Egg carton* (Paper pulp vs thermoformed clear vs. thermoformed foam)

Registration Fee/ Person

- **750 US\$/Person** (register before 20 Mar'18)
- **850 US\$/Person** (register before 15 Apr'18)
- **950 US\$/Person** (register after 15 Apr'18)

The registration fee includes documentation, lunch and refreshments

Group Discount: If 3 or more than 3 delegates join from the same organization, 10% discount will be offered on total registration fee

Venue & Accommodation

CROWNE PLAZA TAMPA WESTSHORE
5303 West Kennedy Blvd. | Tampa, FL 33609
Direct 813.405.1181 | Fax 813.288-7343
www.cptampawestshore.com

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

**Len Czuba, President
Czuba Enterprises, Inc.**

🏠 1105 E. Adams St. Suite 1034, Lombard, IL 60148 USA
☎ +1 630.627.9242 📞 +1 630.632.3560
✉ LCzuba@czubaenterprises.com