



SOCIETY OF PLASTICS ENGINEERS

# The SPE Press

www.socalspe.org

July 2015

The Southern California Section of the Society of Plastics Engineers  
Local information on resources and education available to the plastics profession

**Western Plastics** **AUGUST 13, 2015**

**TRADE FAIR** Hosted by The Southern California Society of Plastics Engineers

Anaheim, CA




The **Western Plastics Trade Fair** is the processors choice for networking with local suppliers.

We hope you will join us and your fellow colleagues on AUGUST 13, 2015. See you at the Fair!

### Objectives

- Networking - Bring local Plastics Processors together
- Enhance a local vendor to processor supply chain
- Effectively introduce new products and services to the Plastics Processor
- Bring awareness to Plastics related educational courses in Southern California
- SPE based seminars - The latest in productivity improvement technology

### Seminars

Renowned speakers and educators who specialize in the plastics industry

**1:00-4:00PM**

Seminar 1: **Practical Guide to Material Selection**

Speaker: Eric Larson, Art of Mass Production

Seminar 2: **TBA**

Speaker: **TBA**

Seminar 3: **TBA**

Speaker: **TBA**

### Exhibits

**4:00-7:30PM**

Local suppliers and resources for the Plastics Industry

- Additive and color suppliers
- Auxiliary equipment suppliers
- Secondary services
- Educational materials
- Overseas markets
- Rapid prototype suppliers
- Insurance services
- and MORE .....
- Material suppliers
- Machinery manufactures
- Job locating/placement services
- Molding supplies
- Software programs
- Educational services - colleges
- Finance and banking resources

Continued on page 2

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**Dinner****5:30-7:00PM**

- Buffet dinner in the exhibit hall
- Network with colleagues during the dinner

**Raffle Prizes**

- Proceeds support our local SPE Scholarship and Plastics Training Programs

**Location****The Phoenix Club [click here](#)**

1340 S. Sanderson Ave. Anaheim, CA

The Phoenix Club, one of the largest venues in Orange County, encompasses 6.2 acres of banquet halls, festival grounds, patio gardens and two restaurants. Inspired by German heritage and tradition to create a European charm has made it one of the most popular places in the region. Exit Ball Road off the 57 freeway and head east. Right on Phoenix Club Drive. Right on Sanderson Ave.

**Registration:** [click here](#) for online registration**INCLUDES: Seminars, Trade Fair Exhibit Hall and Dinner****Advanced purchase non member \$ 40.00 per person****Advanced purchase SPE member \$ 30.00 per person**

\$ 50.00 day of event register at door

**Schedule**

If attending seminars check-in is 1:00 PM, Trade Fair opens at 4:00PM

1:15PM to 2:00PM **"Seminar 1"**2:15PM to 3:00PM **"Seminar 2"**3:15PM to 4:00PM **"Seminar 3"**

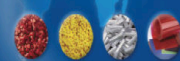
4:00PM to 7:30PM **Trade Fair - Meet your local suppliers and see what's new in the industry!**

5:30PM to 7:30PM **Dinner - Buffet dinner in the exhibit hall**



**For more information contact:**  
Vishu Shah, Consultek 909-465-6699

*This event is hosted by the  
Society of Plastic  
Engineers, Southern  
California section.*

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## President's Message

The year is coming to the end as we approach our last event of the SPE Calendar Year, the **Western Plastic Trade Fair**. The annual event will be on August 13, this year once again at the Phoenix Club in Anaheim. We are looking forward to a great turn out. This year the tables and booths will be assigned, in order to eliminate confusion. If you have a specific location you want for your Booth or Table Top, then be an early registrant.



I want to thank all of our guest speakers this year and our members that came out to our local events. This is my last year as President and I would like to thank the board for all of their support over the last three years. Yes, three years went by fast. This year has had a lot of change for our board, as several of the old guard have stepped down due to retirement, health, and moving to new locations. I would like to take the time to mention them by name, Chris Mitchel, John Szary, Clarence Thomas, Kathy Miller, and Phil Bristow. We also added several new youthful members to the board. I would like to thank them by name, Matt Dauphinee of Mission Plastics and Alex Parelus of ID Additives.

If you would like to be more involved in your local division of SPE, then you should add your name to the list of board members. Please contact Vishu or me.

Rick Hays  
 Senior Account Manager  
 Thermoplastic Industry Manager  
 Rubber Industry Manager

**Online Buyers Guide & Directory**  
 A resource for Southern California's Plastic Manufacturers  
 Don't forget to add a shortcut on your desktop to the SoCal Buyer's Guide  
[www.plasticmfg.socalspe.org](http://www.plasticmfg.socalspe.org)

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## May Dinner Meeting Recap

# Effective Tool & Die Cleaning Technology

The May Evening Technical meeting was held on Thursday, May 21, 2015 at Jagerhaus Restaurant in Anaheim. The topic was presented by Anthony Valenta, Cold Jet's Regional Sales Manager for the Southwestern US. The topic attracted over 18 people from the industry.

The speaker presented why Keeping mold cavities clean is a

major concern for molded metal, rubber and plastic product manufacturers in maintaining today's high quality standards and ensuring maximum productivity. The build-up of unwanted surface residues from either the product mix itself, mold releases or the labeling process can create a number of problems, ranging from product release ("knock out") to inferior product quality and possible damage to tools from overpacking and straining.

Attendees learned about Dry ice which is the generic term for the solid phase of carbon dioxide (CO<sub>2</sub>). Using it in a cleaning method is similar to sand blasting, but this media is non-abrasive and does not create secondary waste.

All the dry ice used in the process is recycled CO<sub>2</sub> from other manufacturing processes.

Mold cleaning with micro-particle dry ice is typically four to six times faster than traditional cleaning methods. It increases plant capacity by minimizing downtime, and because molds can

be cleaned in the machine, it extends production runs. In addition to mold cleaning,



micro-particle dry ice systems are also often used to deburr and deflash plastic parts. Benefits include; cleaning time reduction from 6-12 hours to one hour, Improve product quality, Reduce scrap, Reduce production downtime, Reduce, Clean in-place, no disassembly required, Non-abrasive, no damage to product or equipment, and more. Tyco Electronics estimated an investment return of 18-months and saw benefits immediately as the system paid for itself in just over one month.

If you missed the presentation, you can still view it in its entirety at:

<http://www.socalspe.org/spesocal-monthly-dinner-meeting.html>



**Western Plastics Trade Fair**  
**August 13, 2015**  
**Anaheim, CA**

PLASTIC ENGINEERING – PART DESIGN FOR  
INJECTION MOLDING  
(Course Code AMES-40168, section 109748)



University of California – San Diego, Extension.  
July 11 – August 8, 2015



### **Expanding Skills in Plastic Part Design for Injection Molding**

Plastics have increased their penetration of engineering applications that push the limits of part design, molding techniques and processing ranges. Plastic parts, often complex and large, are calling for better quality control and dimensional tolerances. Resin families and compositional variations have proliferated. Growth in the plastics industry has led to a constant influx of new people from other technologies who need to begin developing skills in the field of engineering plastics. People working in the industry need a good working knowledge of plastic part design.

### **Who Should Attend?**

The course is primarily for designers, engineers, and technicians directly involved with making parts out of plastics. However, those in related activities ranging from management, purchasing, and quality control can benefit from the course by developing a better appreciation and understanding of the process of designing a plastic product.

### **Course Content**

- Process of product design
- Fundamentals of plastics. Strength of materials, non linear considerations
- Materials selection in product design
- Molding and tooling considerations in part design
- General principles of part design. Short term loads, long term stress exposure
- Creep and relaxation in part design. Understanding safety factors in design.
- Dimensional analysis in part design
- Assembly techniques: design of snap-fit, press-fit, fasteners, ultrasonic, vibration welding, heat staking, adhesive bonding.
- Prototyping

**Time/Dates:** Saturdays, 9:00 AM-3:00 PM, July 11 – August 8, 2015 (5 mtgs)

**Location:** UC San Diego Extension. University City Center.

**Instructor:** Tuan Dao, MSME. Consultant, Polymer Engineering Group, Inc.. Formerly with DuPont Co., Engineering Polymers, has 30+ years experience in part design, mold design and molding techniques.



## The College of the Extended University Cal Poly, Pomona

### Plastics Engineering Technology Certificate Program

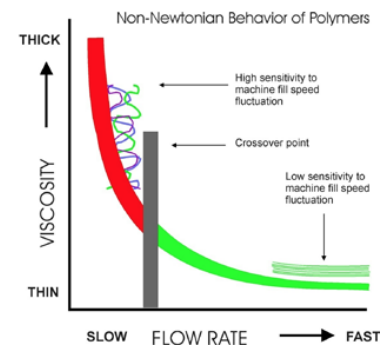
#### Scientific Injection Molding - Fall 2015

The course emphasis is on scientific approach to a somewhat complex injection molding process in order to simplify and eliminate basic misunderstanding about processing techniques employed today throughout the industry. Students will learn the importance of understanding polymer basics, material flow properties, viscosity-shear rate curve, and major plastics variables in molding, decoupled molding techniques, data analysis and interpretation. The course will cover fundamental and scientific approaches to material drying, venting, cooling, use of regrind, how to prepare universal set-up sheet, cycle time optimization, tooling considerations, etc. Use of modern tools and techniques such as mold flow analysis, cavity pressure transducers, and data acquisition tools along with troubleshooting techniques will also be covered.



#### Course Content:

- Polymer Basics, Plastics Materials and Flow Characteristics
- Part Design Fundamentals
- Overview of Basic Injection Molding Process
- Drying, Material Mixing, Coloring, Regrind Usage
- Major Process Variables
- Decoupled Molding, Universal Set Up Sheet
- Tooling Considerations, Venting, Cooling, Ejection
- Cycle Time Optimization and Troubleshooting Techniques
- Mold Flow Analysis
- How to Improve Productivity
- Modern Injection Molding Operation



**Dates: Saturday, September 19 & 26, 2015 Time: 8:00 AM to 5:00 PM**

**Location:** Cal Poly Pomona

**Instructor:** Vishu H. Shah, Consultek Consulting Group [www.consulteksa.com](http://www.consulteksa.com)

**Fee:** \$375 non-credit

**Registration by Telephone** Students may call the College of the Extended University at **909.869.2288** to be placed on the class roster; fees must be paid to guarantee a seat in any class. Students may register by telephone with MASTERCARD or VISA. **Registration by Internet:** [www.ceu.csupomona.edu](http://www.ceu.csupomona.edu)

**For more information call: College of the Extended University 909-869-2288**

**Or Instructor : Vishu Shah 909-465-6699**



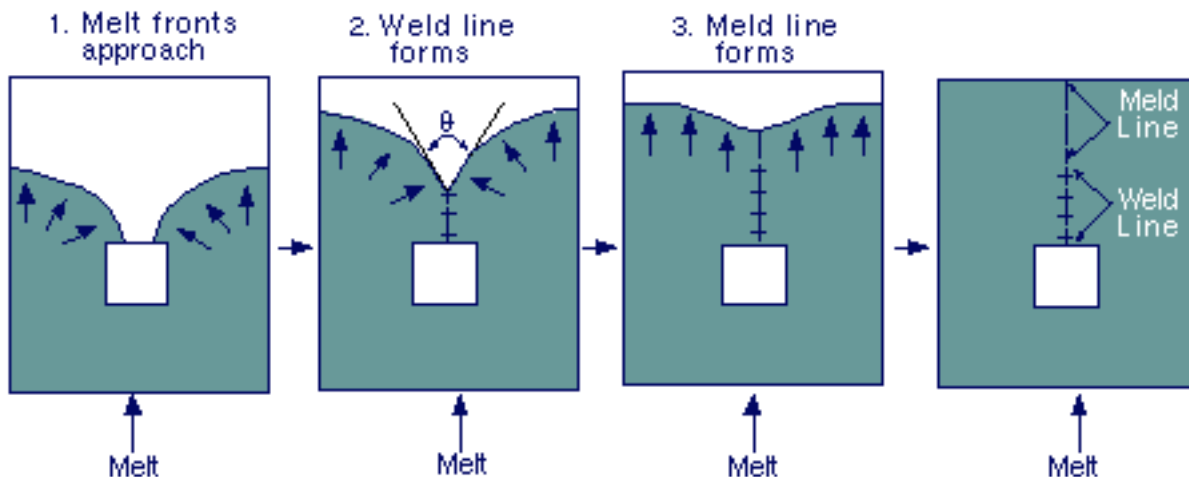
## UPCOMING COURSES

Winter 2016 **Plastics: Theory and Practice**

Spring 2016 **Plastics Product Design and Tooling For Injection Molding**

### *Comments Provided by Students*

- *Great course, very instructional...love the PowerPoint notes*
- *The instructor uses examples that are relevant to my industry/field*
- *The overall explanation of the basics of Plastics was very clear and concise, explained in plain English without having to use big and sophisticated words to explain theory or function*
- *The course's major strength was instructor's ability to relate to real life experience*
- *Very Practical – I highly recommend to anyone new to plastics industry*
- *Hand-outs are great, I refer to them on regular basis*

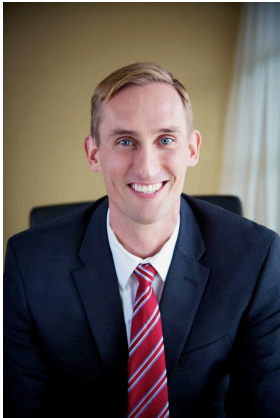


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## Southern California New Member Spotlight

SPE is always proud to gain new members, especially ones with a myriad of knowledge and skills that will prove to be a great asset to our society. **Brigham Barber** has been working in the chemical industry for 9 years after completing his BS in Biochemistry and Master's Degree in Biomedical Sciences. His first job out of school was with a chemical distributor where his focus was in plastics. "I have always enjoyed anything related to science and when I graduated I was looking for work in the industry. Plastics in specific was by chance, but I have enjoyed the challenges this sector holds."



Brig and I have recently become colleagues at The Horn Company. He is a Senior Account Manager, covering Horn's California territory. Seeing many different companies in the SoCal area, Brig knows the key to entering this industry is to find a good company with good people to work for and learn from, it makes all of the difference. There is an understanding of the cutting edge industry that we are a part of, Brig's main attraction is the opportunity to work with entrepreneurs and be a small part of lots of new products on the market.

Brig will undoubtedly have a huge impact for our group. Welcome to SPE Brig! We look forward to working and learning with you!

By: Ashley Price  
Horn Company  
SoCal Membership Chair

## SoCal People

This is a new feature for our news letter. We will note changes of positions, opening of new companies, interesting facts about our plastics community and humorous stories told in good taste about our members. Please forward all of your gossip to me, Kerry Kanbara, [kerry.kanbara@gmail.com](mailto:kerry.kanbara@gmail.com)

### John Holmgren



A familiar name in this industry. John was a key mold engineer for Mattel Toys, Cannon Connectors. John was also a key mold engineer for Fluid Masters. He worked for them along with another legendary name, Sterling Parker. John stayed with Fluid Master after Sterling's death until Fluid Masters relocated to Monterey Mexico.

John was just appointed Tooling Department Manager for Precision Molded Plastics, Inc. in Upland, California [johnh@precisionmoldedplastics.com](mailto:johnh@precisionmoldedplastics.com)



# DZynSource Mold Engineering Software



By Vishu Shah, Consultek Consulting Goup

Plastics professionals, mold designers and tooling engineers all over the world are discovering the advantages of this practical and extremely useful time saving software. This software is a new tool to decrease the amount of time one spends looking up and crunching engineering equations.

DZynSource Mold Engineering Software was written by a mold designer, for his own use, to save time doing engineering

calculations. As a result the software has evolved, over the last ten years, into a time saving tool that does engineering calculations and contains a wealth of engineering data from Fluid Dynamics to Thermodynamics and Strength of Materials. The topics go beyond just mold design and cover many molding and production planning modules. There are sections for machining, a hot runner checklist, material properties, and even a vent width calculator.

Want to save cycle time and improve productivity? Go right to the Fluids section for Reynold's number calculations. Interested in estimating cooling time? You will find Cooling Time estimator under Molding Calculations section. Everything from calculating let down ratio, clamp force requirements, shrinkage calculation, tie bar stretch, runner and gate sizing, vent calculations, sizing mold plates, to specifying chillers, cylinders, valves and pumps is all a mouse click away.



At \$199.99, this mold engineering software is extremely inexpensive. At a \$75 per hour shop rate, this software will pay for itself in 5 weeks, assuming 30 minutes per week of savings. There will be times where each use will save you hours of time. Some calculations are complicated, and can take an hour or more, if not done regularly.

Instead of looking through notes and books for the appropriate formula or equation, all of your engineering calculations are

automated in one convenient location.

You can quickly calculate how many pounds or kilos per hour you will be processing, the heat content that must be removed, the volume of water required to remove that heat, and the chiller tonnage required, and it's all in one quick calculation.

You can quickly calculate your molding capacity based on your own utilization ratios for production planning. Single mold and multiple molds choices are available. You get an answer in parts per minute, hour, day, week, month and year, based on your input.

You can calculate how much leader pins will bend with one, two and three moving plates. Just enter your plate width and the amount of each plate opening. You can either enter the plate weight or use the built-in weight estimator within the leader pin bending module.

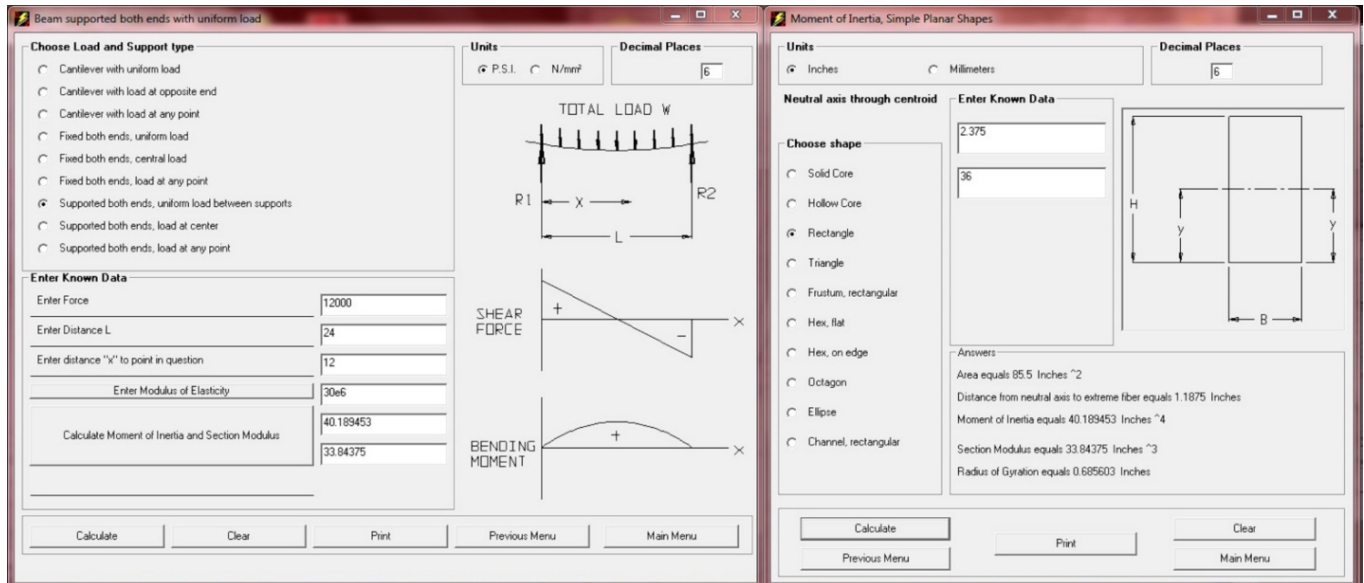


Fig.1 A generic bending calculator with 9 standard scenarios.

Some of the useful features include:

## Fluids

- [Bubbler Size Calculations](#)
- [Continuity Equation](#)
- [Equivalent Hydraulic Diameter – General Case](#)
- [Equivalent Hydraulic Diameter – Annular Channel](#)
- [Fluids Related Conversions](#)
- [Hydraulic Cylinder Calculations](#)
- [Pneumatic Cylinder Calculations](#)
- [Pressure Losses \(Darcy's Equation\)](#)
- [Reynolds Number](#)

## Galvanic Table

## Helix and Cam Angles

- [Helix Angle Calculation](#)
- [Cam Angle Calculation](#)

## Hot Runner Checklist

- [Hot Runner Checklist](#)

## Machining Calculations

- [Effective Cutting Diameter](#)
- [Feed Rate/Feed per Tooth](#)

- IPM <> IPR
- Surface Feet per Minute
- Surface Roughness
- Three Sided Cutters

## Material Properties

- Moldmaking Material Properties
- Mold or Plate Weight Estimator

## Molding Calculations

- Chiller Sizing
- Clamp Force Requirements
- Cooling Time Estimator
- Let Down Ratio Calculator
- Minimum Mold Open Time
- Pounds or Kilograms of Plastic per Hour
- Plastic Shrinkage Table and Calculator
- Tie Bar Stretch

## Production Calculations

- Calculate Pounds or Kg per Hour
- Capacity and Utilization Ratio
- Convert Hours to Days or Weeks
- Quantity of Cavities Required
- Quantity of Molded Parts
- Time to Mold a Quantity of Parts
- Estimating Runner Size

## Strength of Materials

- Beam Deflections
- Circular Discs (Round Parts)
- Deflection of Circular Discs
- Two Material Strain Answers
- Hoop Stress
- Leader Pin Bend
- Euler's Long Column Test (L/K Column Test)
- Critical Load for Long Column Buckling
- Moment of Inertia and other Properties of Geometric Shapes
- Mold Plate Distortion – Plate deflection due to side loading

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### Elastic Strain:

- ❖ [Stretch or Compression Uniform Cross-section One Material](#)
- ❖ [Stretch or Compression Tapered Cross-section One Material](#)
- ❖ [Stretch or Compression Uniform Cross-section Two Materials](#)
- ❖ [Answers to the Elastic Strain Calculation](#)

### Surface Finish

- [SPI/SPE Finish Chart](#)
- [Surface Finish Comparison](#)

### Thermal Calculations

- [Water GPM + Chiller Sizing](#)
- [Linear Thermal Expansion Coefficients and Calculations](#)

### Thread Calculations

- [Three Wire Thread Measurement](#)
- [Pipe Threads](#)
- [Properties of Screws and Threads](#)

### Trigonometry

- [Chord and Segment Calculations](#)
- [Degrees, Minute, Seconds <> Decimal Degrees](#)
- [Right Angle Trigonometry](#)
- [Roll Dimensions](#)
- [Sine Plate Gage Block Calculator](#)
- [Tooling Ball Calculator](#)

### Unscrewing Calculations

- [Unscrewing Mold Worksheet](#)

### Vent Depth and Width

Check out this and other educational videos on YouTube:

Waterlines Bubbler Calculations <https://www.youtube.com/watch?v=p1wBbmLddlw>

More information available at: [www.dzynsource.com](http://www.dzynsource.com)



# SPE Southern California Leadership

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