SPE SOUTHERN CALIFORNIA

The SPE Press

www.socalspe.org

December 2015

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

Date: Thursday, January 21, 2016

Jagerhaus Restaurant
525 East Ball Road,
Anaheim, CA 92806
714.520.9500

Registration: 5:30 p.m.

Dinner & Presentation: 6:00 p.m.

Register Now!

SO YOU WANT TO BE A MEDICAL MOLDER!?

What the FDA requires of medical molders

Bob Mehta, Principal Consultant & Recruiter B.S. (chem). GIE Services

For those that are interested in becoming a medical molder or have questions on what the FDA requires in order to becoming a successful and leading molder in the medical device industry, this is the presentation for you. We have set up an hour long presentation with a highly knowledgeable speaker to help inform those inquiring minds what they should expect when striving to enter the world of medical molding. Bob Mehta, GIE (GMP ISO Experts) Services will explain what it takes and the steps necessary to becoming FDA compliant from the lowest and highest levels. Besides having an expertise in GMP and ISO, his expertise also spans from Quality Assurance and Control to Auditing and training, which Is why we have allotted for a generous Q&A session after the presentation to answer any questions or concerns future medical molders might have might have.

Bob Mehta, MBA, MSQA, ASQ, is a consultant and recruiter in the medical device industry and is recognized internationally as an FDA compliance and regulatory expert. Bob Mehta is a Certified Six Sigma Black Belt (CSSBB) with 24+ years of hands-on experience helping Pharma/Biologics/Medical Device manufacturers with implementation/remediation of Quality Systems, CAPAs, and to support Supplier/Internal Audits, Process Improvements, and Training projects. He is currently on the Medical Device Board of Advisors (MDIEC). Bob is also an Adjunct professor at the University of Dominguez Hills, CA teaching courses for Masters of Science Quality Assurance, as well as an adjunct instructor for Medical Device Certification at North Orange Community College. Along with molding young minds, Bob has also written a book titled "Implementing ISO/IEC 17025:2005 - A Practical Guide ".

HAPPY HOLIDAYS!

PRESIDENT'S MESSAGE

I can't believe that 2015 is almost over. There are less than 30 days remaining in 2015 and before you know it 2016 will be here.

During the month of November, our SPE section together with SoCal Edison hosted a symposium on "Energy Efficient in Plastics Operation" which featured many industry leaders who provided an update on emerging technologies as well as strategies that can reduce power demand and energy consumption that affect the molding operations. It was great to learn from the panel discussions energy saving techniques and rebate incentives that help in increase energy efficiency and lower the operation costs. And our SPE section is also busy planning some great events for early 2016:

January 21 – Medical Molding
February – Technical seminar (date and location TBD)
March – Education night (date and location TBD)

Please come and join us at these events. For more information, please visit our website.

By the time you read this we will be very much into the Holiday season so I would like to take this opportunity to wish a Happy Holiday season to our sponsors, section members and board members, and I look forward to meeting and seeing you at our events in 2016.

Happy Holidays,

Tuan Dao
President, SoCal SPE
(714) 692-9492

Councilor Report

Pittsburgh Council Meeting
October 9-11, 2015

Vishu Shah, So Cal SPE Section Councilor
Consultek Consulting Group

I am sure by now you all are well aware of the transformation SPE has been going through for past four years. The focus has been on modernizing the website, developing social networking platform, improving communication, globalization, streamlining operation, attracting young generation and focusing on student activities, e-membership, and much more. In short, the major emphasis is on delivering value to the members. Naturally, the council (the governing body of SPE) has focused on implementation and refinement of these new ideas. Newly elected president Dick Camron promoted his agenda of team building and networking among counselors and interactive communications with members. To that end, the Fall Council meeting opened a day early on Friday evening with a Team Building Exercise. All councilors enjoyed the exercise and found it to be very valuable.

The new interactive service "The Chain" (touted as the linked-in of Plastics professionals) has been operational and more professionals are joining daily. The Chain is an online community platform with tools to link people for topical discussions so you can find the information you need while developing a broader professional network. These communities are designed to provide awareness of SPE activities, promote member interaction and engagement, and facilitate work activity for SPE leadership and staff. Tech Talk, which is part of The Chain, is a good way to get answers to questions and find out about technical items. SPE's new website is dynamic, vibrant, interactive and full of valuable technical information and videos. If you have not been there, please check it out at www.4spe.org .

During the week of the council meeting, a new e-mail based Newsfeed was launched called "Plastics Insight". The newsfeed is dubbed as SPE's answer to the industry's request for a more focused delivery of critical information. This will be delivered to free subscribers every Saturday morning. This resource is a focused way to get the most recent data regarding the areas of interest for the plastics industry. To personalize your newsletter, simply select the industries, markets, processes, materials, services and equipment of greatest interest to you at http://www.4spe.myindustrytracker.com/en/top.

SPE is also working to create video tutorials on a variety of topics. These "technical" video tutorials will be available on the web soon. SPE International has linked up with a new product database of polymer materials that will be on the SPE website where you can search for polymer materials.
Another recent development is a free electronic SPE membership. As an electronic member (e-member) you will have access to some basic SPE items, but can also purchase premium items as desired. SPE e-Members receive instant access to SPE's THE CHAIN - the exclusive online networking platform for the global plastics industry.

One of the larger issues at this meeting was the review and discussion of the work which the Governance Task Force (GTF) is doing. This group of people was put together to evaluate the governance for SPE International and determine possible changes. More about this and other topics of interest in next newsletter.

 Until then, Happy Holidays to you all! 

CAN YOU HELP A HIGH SCHOOL STUDENT YOU KNOW GET $500 FOR THEMSELVES AND $500 FOR THEIR SCHOOL WHILE LEARNING ABOUT PLASTICS? YES!

"WONDERS OF PLASTICS" ESSAY CONTEST FOR 2016 NOW OPEN

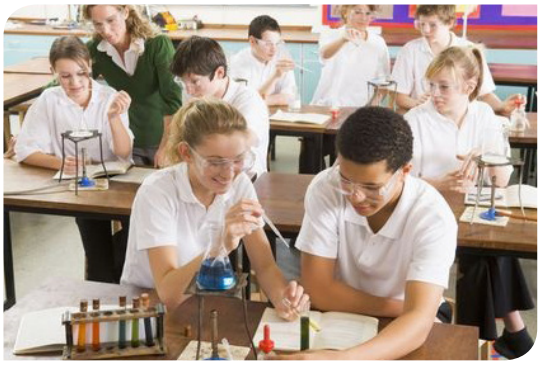
The Southern California Section of SPE is opening the 2016 Wonders of Plastics essay contest. The objective of the contest is to raise awareness and education about the positive aspects that plastics play in society today.

Any high school student in the section region may enter. Thus, as a member, if you know any high school student (son/daughter, grandchild, neighbor, etc) that is eligible, please forward the information to them. The region goes north to San Luis Obispo County, south to the Mexico border and east to the Arizona border.

The essay topics are open to be chosen by the student, they just have to be related to the positive aspects of plastics in our world. Some topics have been the benefits of plastics in medicine, energy savings, plastics recycling, etc. Our goal is to expand the students' plastics knowledge by their submission of original and well researched papers. Again, any plastics related topic of their interest will do! How plastics rockets helped me learn about science? Sure!

In the past, the Southern California Section has awarded over $15,000 in prizes to students with over $15,000 match to their schools. The school decides where the money goes, the Section just writes the check. The donations to schools have typically gone right back to support science classes.

Click here for instructions and submission form. Any questions, please contact Victor Okhuysen at vfokhuysen@cpp.edu and put **"Essay Contest"** on the subject line.



FOR YOUR INFORMATION

New silicone elastomer up to 50% stronger than existing materials

Calling it an important milestone in silicone science that will open new avenues of innovation for medical device designers, Nusil (Carpinteria, CA) has introduced a material with a tensile strength up to 50% greater than existing silicone elastomers on the market. The line of High Strength Silicones also features a combination of properties that make the materials uniquely soft and pliable, according to the company.

The new platinum-cure silicone elastomers provide device and component manufacturers with a super strong, low durometer, high elongation material without compromising hysteresis or tensile set, says NuSil. In particular, the company believes the materials will enable the production of thinner, stronger and more resilient catheter balloons.

Read more: http://www.plasticstoday.com/articles/new-silicone-elastomer-50-stronger-existing-materials

Injection Molding Technology: What Does The Future Hold?

Someone asked me recently what I saw as the future of molding machinery. Where did I think the industry was heading? What was the next Big Thing for injection molding?

It's an interesting question, since I don't believe the industry is standing on the cusp of the 'next big thing.' Don't get me wrong – I think we're seeing significant advances in molding technology & capabilities, but they tend to come in smaller bites…a collection of baby steps that have led us many miles down the road.

Likewise, I think the future holds in store much of what we already have today…just more of it. The trends in which I see continued growth – medical, micro, automation – are already well-established.

Read more: http://www.4spe.myindustrytracker.com/en/article/70598?id=70598

New Eastman Innovation Lab Site Seeks To Address Gap Between Design And Fabrication

Initially intended as an online showcase for case studies detailing how materials could solve design challenges, the Eastman Innovation Lab (EIL; Kingsport, TN) website has undergone a make-over prompted and informed by user feedback. The company identified a "gap between designing something and then actually making it," Farrell Calabrese, Creative Manager, told PlasticsToday. "Our [design] community needed more material information," she added, and the site has been redesigned to address this. It now emphasizes insights into how things are made and provides a more complete view of Eastman's material capabilities and technologies.

Read more: http://www.plasticstoday.com/articles/new-eastman-innovation-lab-site-seeks-address-gap-between-design-and-fabrication-151105

Splay: What is it? How to get rid of it?

Tech Tips by
Suhas Kulkarni

In Injection Molded parts the most common cosmetic defect is splay. See Fig. 1. I have been to several organizations and have been shown their defect charts. Splay is always the issue that tops the charts. To solve any problem one needs to understand the source of the problem. So let us understand what is spay to begin with.

Fig. 1: Splay marks on a molded part

Injection molding is the process of injecting molten plastic into a mold. The cavity steel has a desired texture that gets picked up by the molten plastic and is replicated on the part. Depending on the base polymer that is being molded the plastic melt temperature is anywhere between 350 deg F to up to even 750 deg F. At these temperatures water turns to steam and some of the low molecular additives can burn to produce volatiles. The speed of injection of the plastic into the mold will also shear the molecules. Excessive shear can degrade the molecules. Steam and volatiles (from now on collectively grouped as volatiles) from degradation then flow with the plastic into the mold. Because of the fountain flow of the plastic in to the mold cavities the volatiles get to the surface and prevent the molten plastic from coming in contact with the mold steel and at the same time smearing the volatile on the interface of the melt and the mold steel. This shows up a streaks and is called as splay. Splay is also called as Silver streaks. See Fig 2.

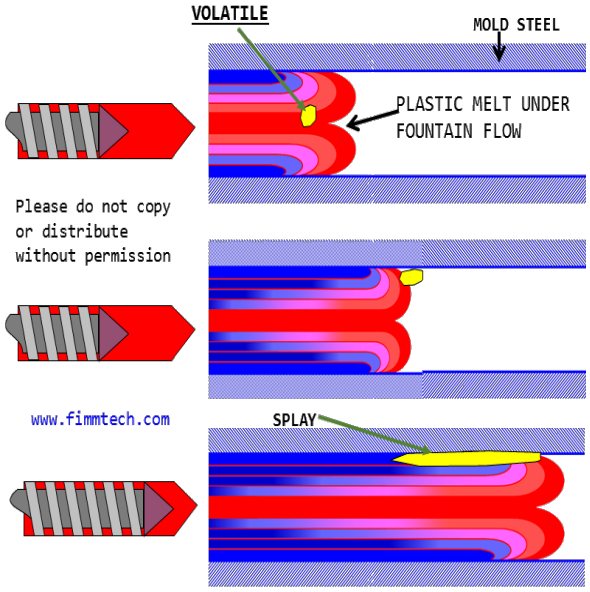


Figure 2: FORMATION OF SPLAY

Another source of volatiles can also be the gate. If the gates are too small or have sharp edges the plastic can get excessively sheared and give out volatiles. In that case, mold design is the culprit. Sometimes a worn out screw and/or barrel can also cause excessive shear resulting in splay.

There will always be some volatiles and definitely air that gets trapped in the melt stream. This air is the air that is present between the pellets as the pellets go from the feed section to the compression section of the screw. Back pressure applied during the screw recovery process helps get rid of this air and volatiles. Back pressure should always be kept to a minimum since excessive back pressure can also increase shear and result in splay. Send me a quick email to tell me you have read this. It will mean a lot to know how many people are reading my article that I take an effort to write.

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Regrind can also cause splay if the regrind has excessive fines. Fines don't convey well since they can get stuck to the screw and finally degrade causing volatiles.

The vents in the mold provide an outlet for the volatiles. If the vents are plugged up and/or are not deep enough and/or are not sufficient in number, then the volatiles have nowhere to go resulting in splay.

Following are the solutions to take care of spay. PLEASE DO NOT FOLLOW THEM BLINDLY! Find the source of the problem!

1. Check moisture in the material
2. Decrease melt temperature
3. Decrease injection speed
4. Increase back pressure
5. Check to see if regrind has excessive fines
6. Check and clean the vents in the mold

Happy Molding!

Contact Info: Suhas Kulkarni www.fimmtech.com

SoCal People Watch

This is a newsletter feature where 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.

So Cal SPE Honors Clarence Smith

Clarence receiving "Honored Service Member" (HSM) prestigious award. Only 316 members have been elected to this prestigious status.

According to SPE Bylaws, "To be elected an Honored Service Member, a candidate shall have demonstrated long-term, outstanding service to, and support of, the Society and its objectives".

Clarence served So Cal SPE section unflaggingly for over three decades.

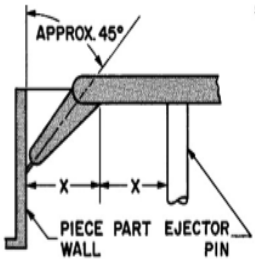
In 1995 Clarence G. Smith became the Southern California Section President. Activity in the San Diego area had declined tremendously and Clarence was responsible for reactivating the San Diego Branch of the Section. He recruited new officers and attended their board and Technical meetings, supporting their needs. Working with Alex Mora the team set up programing which included bilingual programs for companies who had Maquiladora programs along the Mexican border. This connection helped to improve attendance at meetings and revitalize the San Diego Branch.Clarence Smith served on a pilot program sponsored by the state of California. The object of the program was to encourage High School dropouts to consider their future and offer them an opportunity of a lifetime. Classes were offered at Cerritos College to educate the students and help them obtain jobs in the plastic industry. All 50 students that participated in the program were hired by local industry or were promoted due to their renewed knowledge. This program won a Governors Education award and became a model for other industries in the state.

During Clarence's term as Section President he set up joint meetings with several Industry leaders such as SME, ASQ, SPI and the American Chemical Society to promote membership, networking and meeting attendance. That relationship continues today and is an example of Clarence's accomplishments and his leadership capabilities.

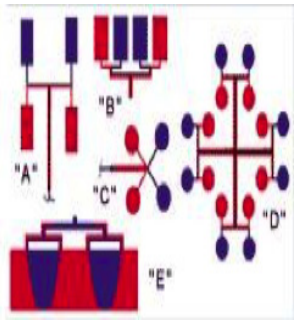
In addition to serving on all of the SoCal Section committees and several of the officer's positions, Clarence served as the Sections International Councilor from 2000 to 2006.

All about Gate, Runner and Vent Design

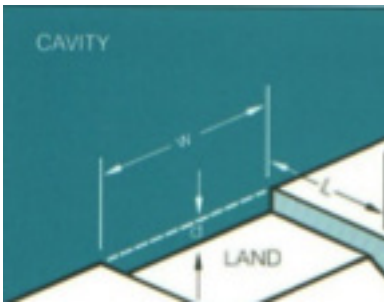
October Evening Technical meeting was held on Thursday October 22, 2015 at Jagerhaus Restaurant in Anaheim. The topic "All about Gate, Runner and Vent Design" was presented by Tuan Dao of Polymer Engineering Group.



The speaker presented how the majority of cosmetic issues stem from poor design and lack of understanding of three key items, Gate, Runner and Venting. He explained that the purpose of the runner system is to convey the hot molten material from the sprue to the gate with minimum loss in pressure. Runners also control cooling time in small parts. Full round runners are the most efficient for minimizing heat loss and pressure. Balanced runner design is imperative for making quality parts.



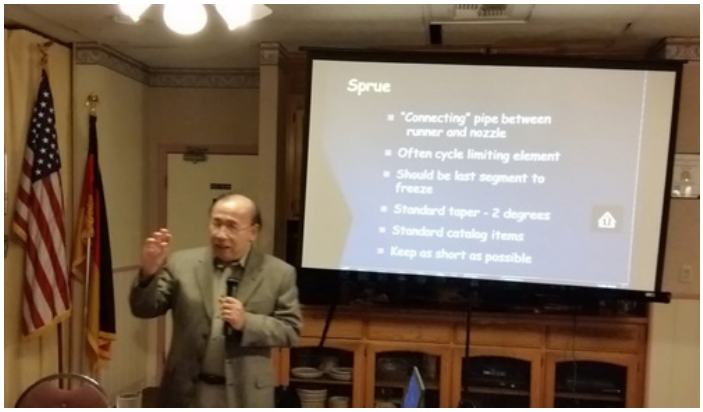
Importance of proper gating cannot be over emphasized. Gate design and gate location can have drastic effect on overall part quality with issues ranging from cosmetic defects, part packing, part sticking, warpage to part dimensions.



The speaker discussed the importance of proper venting. Non-uniform venting is the number one cause of mold fill imbalance. Inadequate venting can lead to poor mold filling, burn marks, weak weld lines, internal bubbles, high stress concentration, sink marks, longer cycle time resulting from slow injection velocity, mold deposit build up, decorating and adhesion problems etc. Sizing the vent is extremely critical.

Attendees learned about practical aspects of gate, runner and vent design. The speaker drew upon his over 30 years of technical service experience and shared the knowledge acquired from working with thousands of OEMs, molders and tool makers.
Lively discussion and question answer period followed the informative talk.

The entire presentation can be viewed at www.socalspe.org website.



UPCOMING COURSES

The College of the Extended University Cal Poly, Pomona

COLLEGE OF THE EXTENDED UNIVERSITY CAL POLY POMONA

https://www.ceu.cpp.edu/courses/cert/EM/PET.html

Winter 2016
(Jan. 30 - Feb. 6, 2015)
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*

PLASTICS 101 - Theory and Practice — Winter 2016

This course is designed to introduce students to basic concepts and techniques used throughout the plastics industry. The objective is to expose everyone to the fundamentals of Plastics, product design, basic processing techniques, secondary operations and tooling. The attendees will be given handouts showing How and Where to get more detailed information on variety of Plastics related-topics. This course would be valuable to all technical, scientific and engineering personnel, either entering field of plastics or interested in broadening their knowledge of materials and processing techniques. It is also suitable for individuals in plastics sales, marketing, purchasing, and quality assurance.

Plastics Product Design & Tooling for Injection Molding — Spring 2016

The first portion of this combined course provides an overview of the design process for injection molded plastics parts. The emphasis is on concurrent engineering practices, which leads to elimination of barriers between various engineering groups, toolmaker and manufacturer. The student will learn about importance of proper material selection, part design process, part design fundamentals, manufacturing (moldability) considerations, design for asembly, tooling considerations, rapid prototyping techniques and testing. Students are encouraged to share their knowledge of product design success/failure stories in a group discussion format. Design fundamentals discussed are applicable to parts designed for all plastics processing techniques. In the tooling portion of the course the emphasis is on, types of molds, mold material selection, various mold components, mold design principles, cooling, venting, draft considerations, shrinkage, mold polishing, and tool surface enhancements techniques. Topics such as use of simulation software to enhance mold design, how to improve productivity, reduce down time, and lower maintenance costs by optimizing tooling design will be covered in detail.

For more information call the college at 909-869-2288 or Instructor Vishu Shah at 909-465-6699.

SPE Southern California Leadership

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House Committee Chair: Skip Humphry, International Plastics Equipment	909-830-7010	intl.plasticsequip@verizon.net
Education Committee Chair: Victor Okhuysen, Cal Poly Pomona	909-869-2698	vfokhuysen@csupomona.edu
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Awards Committee Chair: Markus Lettau, Engel	951-278-5660	Markus.lettau@engelglobal.com
Special Events Chair:Matthew Dauphinee, Mission Plastics	909-947-7287	mdauphinee@missionplastics.com

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Bethel, CT 06801-1065 USA

Membership Application

PH: 203-775-0471 • Fax: 203-775-8490
www.4spe.org • membership@4spe.org

Contact Information *Please print clearly*

First Name (Given Name) Middle Name

Last Name (Family Name)

Company Name/University Name (if applicable)

Mailing Address is: ☐ Home ☐ Business Gender: ☐ Male ☐ Female (for demographic use only)

Address Line 1

Address Line 2

Address Line 3

City State/Province

Country Zip/Postal Code Phone

Preferred Email (This will be your member login and is required for usage of online member services)

Alternate Email

Date of Birth (*Required* for Young Professional membership)

Graduation Date (*Required* for Student membership) Job Title

Membership Types *Check one*

☐ **Student: $31** (Graduation date is required above)
☐ **Young Professional: $99** (Professionals under the age of 35. Date of birth is required above)
☐ **Professional: ~~$144.00~~ $129** (Includes $15 new member initiation fee)

Choose 2 *free* Technical Division and/or Geographic Section Member Groups. →

1. _____ 2. _____

Additional groups may be added for $10 each. Add Special Interest Groups at no charge.

1. _____ 2. _____
3. _____ 4. _____

Dues include a 1-year subscription to *Plastics Engineering* magazine-$38 value (non-deductible).
SPE membership is valid for 12 months from the date your membership is processed.

Payment Information Payment must accompany application. No purchase orders accepted.

☐ Check Enclosed Amount _____

Charge: ☐ Visa ☐ Mastercard ☐ American Express Expiration Date: _____

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The SPE Online Member Directory is included with membership. Your information is automatically included unless you indicate otherwise.

_____ Exclude my email address from the Online Membership Directory
_____ Exclude all my information from the Online Membership Directory
_____ Exclude my address from 3rd party mailings

By signing below, I agree to be governed by the Bylaws of the Society and to promote the objectives of the Society. I certify that statements made in the application are correct and I authorize SPE and its affiliates to use my phone, fax, address and email to contact me.

Signature _____ Date _____

Technical Division Member Groups - Connect with a global community of professionals in your area of technical interest.

☐ Additives & Color Europe - D45
☐ Applied Rheology - D47
☐ Automotive - D31
☐ Blow Molding - D30
☐ Color & Appearance - D21
☐ Composites - D39
☐ Decorating & Assembly - D34
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☐ Engineering Properties Structure - D26
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☐ European Thermoforming - D43
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☐ Plastics Environmental - D40
☐ Polymer Analysis - D33
☐ Polymer Modifiers & Additives - D38
☐ Product Design & Development - D41
☐ Rotational Molding - D42
☐ Thermoforming - D25
☐ Thermoplastic Materials & Foams - D29
☐ Thermoset - D28
☐ Vinyl Plastics - D27

Geographic Section Member Groups - Network with local industry colleagues.

☐ Alabama/Georgia-Southern
☐ Asean*
☐ Australia-New Zealand
☐ Benelux
☐ Brazil
☐ California-Golden Gate
☐ California-Southern California
☐ Caribbean
☐ Carolinas
☐ Central Europe
☐ China
☐ Colorado-Rocky Mountain
☐ Connecticut
☐ Eastern New England
☐ France
☐ Hong Kong
☐ Illinois-Chicago
☐ India
☐ Indiana-Central Indiana
☐ Israel
☐ Italy
☐ Japan
☐ Kansas City
☐ Korea
☐ Louisiana-Gulf South Central
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☐ Michigan-Detroit
☐ Michigan-Western Michigan
☐ Middle East
☐ Nebraska
☐ New Jersey-Palisades
☐ New York
☐ North Carolina-Piedmont Coastal
☐ Ohio-Akron
☐ Ohio-Cleveland
☐ Ohio-Miami Valley
☐ Ohio-Toledo
☐ Oklahoma
☐ Ontario
☐ Oregon-Columbia River
☐ Pennsylvania-Lehigh Valley
☐ Pennsylvania-Northwestern Pennsylvania
☐ Pennsylvania-Philadelphia
☐ Pennsylvania-Pittsburgh
☐ Pennsylvania-Susquehanna
☐ Portugal
☐ Quebec
☐ Spain
☐ Taiwan
☐ Tennessee-Smoky Mountain
☐ Tennessee Valley
☐ Texas-Central Texas
☐ Texas-Lower Rio Grande Valley
☐ Texas-North Texas
☐ Texas-South Texas
☐ Tri-State
☐ Turkey
☐ United Kingdom & Ireland
☐ Upper Midwest
☐ Utah-Great Salt Lake
☐ Virginia
☐ Washington-Pacific Northwest
☐ West Virginia-Southeastern Ohio
☐ Western New England
☐ Wisconsin-Milwaukee

*Asean: Indonesia, Malaysia, Phillipines, Singapore, Thailand, Cambodia, Laos & Vietnam

Special Interest Groups - Explore emerging science, technologies and practices shaping the plastics industry. Choose as many as you would like, at no charge.

☐ Advanced Manufacturing / 3D - 033
☐ Bioplastics - 028
☐ Failure Analysis & Prevention - 002
☐ Joining of Plastics & Composites - 012
☐ Marketing & Management - 029
☐ Non-Halogen Flame Retardant Tech. - 030
☐ Plastic Pipe & Fittings - 021
☐ Plastics Educators - 018
☐ Plastic in Building and Construction - 027
☐ Quality/Continuous Improvement - 005
☐ Radiation Processing of Polymers - 019
☐ Reaction Injection Molding - 032
☐ Thermoplastic Elastomers - 006

Recommended by (optional) _____ ID# _____

PE15