SPE SOUTHERN CALIFORNIA

The SPE Press

www.socalspe.org

November 2017

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

PLANT TOUR

Date: Thursday, November 16, 2017

6:00 p.m.

Prestige Mold Inc
11040 Tacoma Dr,
Rancho Cucamonga,
CA 91730

REGISTER NOW

Prestige MOLD INCORPORATED

PRES-TEK PLASTICS, INC.

For generations, Prestige Mold has been the global manufacturing leader of the highest-quality, competitively-priced precision injection molds. Supported by revolutionary technology and expert personnel, Prestige sets the standard for mold manufacturing excellence. Superior service, absolute quality, flawless design, and incomparable products allows Prestige Mold to form long-term, dynamic partnerships. The clients benefit from optimum manufacturability at lower overall costs. www.prestigemold.com

Pres-Tek Plastics, Inc. is a world-class medical molding and technology center located in Southern California. Our impressive facility includes a Class 8 cleanroom, Tech Center for mold qualification, Metrology Lab, validated processing, automation, and validation equipment. In conjunction with sister company, Prestige Mold Inc., Pres-Tek can offer art-to-part solutions for turnkey production systems. www.prestekplastics.com

Register Now!

PRESIDENT'S MESSAGE

Greetings SPE Members.

November is here, and I can't help but think about all the things that I am thankful for. One of those items is being a part of this society that has not only broadened my involvement within the plastics industry, but has given me ties and experiences that will always be of such great benefit to me.

If you are reading this message, then you are in some way connected to the Southern California Section of SPE. You might have attended a dinner meeting, or a plant tour, maybe received an SPE scholarship, exhibited at our tradeshow, maybe you came out to play a game of golf with us, or, you are one of the devoted volunteers that makes this engine turn. Whichever it may be, I would like to extend a huge thank you for supporting this society's efforts and helping us to uphold to the SPE mission, which is "to promote scientific and engineering knowledge relating to plastics worldwide and to educate industry, academia, and the public about these advances."

Enjoy the holiday season and I hope to see you at the next SPE Plant Tour Event, which will take place at Prestige Mold on Thursday November 16th.

All the best,
Ashley Spittle
SoCal SPE President

DINNER MEETING WRITE-UP

Applied Minerals Dinner Meeting

September 28, 2017

SoCal SPE held the first dinner meeting for the new SPE Fiscal Year. We also held the dinner meeting for the first time at Dave & Busters in the City of Orange. Our Presenter was Brian Newsome of Applied Minerals.

Applied Minerals is a manufacturer of Hollow Nano Tube known as Halloysite Clay. This clay is kaolin in nature and is rolled up by mother nature into hollow tubes similar to a rolled-up newspaper. Applied Minerals brand name for the Halloysite Clay is Dragonite. Brian discussed several properties the Dragonite adds to Thermoplastics and even Thermosets.

1) Halloysite is a synergist for non-halogen flame retardants.
2) Halloysite also works as an ATO replacement synergist, for Halogen systems.
3) Halloysite provides reinforcement properties.
4) Halloysite can be used to provide controlled release delivery additive.
5) Halloysite can absorb liquids enabling the masterbatcher the ability to add liquids in a dry form.
6) Halloycite is also used for nucleation/cycle time reduction in a number of polymers.

Brian Newsome's presentation is available at www.SoCal SPE.org website. We had a positive response to our guest speaker and to our dinner meeting location. Thank you to all the members in attendance.

KNOW YOUR SPONSOR

AUTODESK.

Autodesk: Make Anything

Autodesk makes software for people who make things. If you've ever driven a high-performance car, admired a towering skyscraper, used a smartphone, or watched a great film, chances are you've experienced what millions of Autodesk customers are doing with our software. Founded in 1982, Autodesk is headquartered in San Rafael, California.

Autodesk Moldflow: The Standard for injection molding simulation

Industry leading companies worldwide use Autodesk® Moldflow® software to help optimize part and mold designs, reduce potential manufacturing defects, and get innovative products to market faster. Autodesk Moldflow provides tools to help CAE analysts, engineers, and designers evaluate different designs, mold configurations, and the different injection molding processes, reducing the need for costly physical prototypes to plan ahead for manufacturing.

- Plastic flow - Simulate the flow of thermosets and thermoplastics to help optimize plastic part and injection mold designs, reduce potential part defects, and improve the molding process.
- Tooling layout - Evaluate and optimize cavity location, hot and cold runner systems, and gating configurations.
- Mold cooling configuration - Improve cooling system efficiency, minimize part warpage, achieve smooth surfaces, and reduce cycle times.
- Shrinkage and warpage - Evaluate plastic parts and injection mold designs to help control shrinkage and warpage.
- Material library - Robust library with over 9,500 grades of material from a variety of suppliers to effectively evaluate various material options for your part design.

... continued on page 5

... continued from page 4

Features:

- Error checking and repair - Scan imported geometry and automatically fix defects that can occur when translating a model from CAD software.
- Specialized simulation tools - Solve design challenges with simulation, such as insert overmolding, two-shot sequential overmolding, birefringence, and foaming processes.
- Specialized molding processes - Simulate a wide range of plastic injection molding processes and specialized process applications.
- Easily create, repair, and refine meshes during re-meshing with mesh selection and node previews.
- Results interpretation and presentation, use a wide range of tools for model visualization, results evaluation, and presentation.
- Automation and customization – Automate common tasks and customize Autodesk Moldflow software for your organization.
- Productivity tools - Use advisers and extensive help to boost productivity.

MEMBERSHIP SPOTLIGHT

SoCal SPE Wants YOU to Become a Member

The SPE Southern California Section is, for a limited time, offering one FREE registration to a single, exclusive local technical event for those who sign up for an SPE Membership! To be eligible for this special offer, visit our website www.socalspe.org to check out the event calendar and register as an SPE Member! Once a member, you will be sent a voucher to bring to the SoCal SPE event of your choice! Offer also applies to expired memberships. Don't let this opportunity pass you by, become an SPE member today!

For questions, contact Ashley Price at 562-217-1377 or aprice@ethorn.com.

SMED-Single Minute Exchange Die Part 2: Implementation

Victor Okhuysen, Ph.D., Professor of Manufacturing Engineering, Cal Poly Pomona University

This is the second part of a two part series. This first article covered the benefits of SMED and the key principle. This article will cover step by step implementation of SMED.

As a recap from the past article, SMED is a technique used within lean manufacturing to reduce waste and change over time of tooling. The general benefits include lower costs, better use of labor, increased machine uptime, lower inventories, etc. There are elements of SMED that are virtually free such as organizing tasks between internal and external while there are other aspects to implementation that could require a significant investment. In all cases, a cost/benefits evaluation should be done.

How is SMED implemented? There are many variations to SMED implementation, but they all include the following main steps:

1. **Observe and study the current process:**

The objective of this observation is to find out everything that happens when executing a changeover and how long it takes. That is, all the steps involved and how long they take. In addition to that, what personnel is necessary for each step.

2. **Define necessary steps and identify unnecessary steps and take action to remove them:**

When defining the necessary steps different tools will require different steps. I prefer to develop a standard checklist with several Not Applicable slots than multiple custom sheets. Depending on your work mix a few standard checklists may be a better solution, but certainly not one for each mold. Identification of unnecessary steps and their elimination is crucial to a successful SMED implementation. An all too common example of this is having personnel looking for misplaced tools and supplies. One solution to this is to organize a tool and supply crib so that it becomes one stop shopping. For molds that are changed frequently (once/week) it may justify the investment of a supply tray dedicated to this tool. In this manner, all correct length hoses, connectors, special tools can be in one location and all the setup tech needs to do is grab the tray. For molds that have lower usage (once/year) this would not be justified.

3. **Classify all (necessary) steps between external and internal:**

External steps are those that can be done off line such as retrieving the new mold and collecting all necessary tools and supplies for the changeover. Internal are those where it is necessary to stop the machine. Examples include loading and unloading the mold. Whenever possible, change internal to external steps, such as hooking water lines to the mold. Hooking the lines to the mold can be done as an external step prior to loading to the machine while hooking the lines to the machine has to be done as an internal step.

In addition find steps that can be performed simultaneously (for instance, one person can work on changing the mold, another to change the polymer and machine settings and another one to work on peripherals). One note of caution, use proper lockout/tagout and other safety procedures while having multiple people working on the same cell.

... continued on page 7

... continued from page 6

4. **Optimize each step with an emphasis on optimizing internal steps:**

In this case, look at what the objective of the step is, not just what the action of the step is. For instance, one step could be defined as "threading water hoses to mold." This can be optimized by providing a tool for threading faster. On the other hand if the task is defined as "connecting water hoses to mold" this opens up the use of quick disconnects and dedicated manifolds. Also note that if the water lines are connected to the mold offline, it does not stop the machine, so this can be done slowly but it makes sense to invest in optimizing the connection of lines to the machine as this is an internal step and the machine must be stopped.

Sample sequence on changing a mold in an injection molding press:

This is a simplified set of tasks using only a few steps for illustrative purposes. More than likely some elements of this are already in place in your changeover operations. The 'original' process is defined as 100% sequential, which is not necessarily the norm, but has been observed by the author in some places. The values are estimates, not real time studies. Also note that a similar approach can be done on the plastic side of the machine and any auxiliaries such as robotic unloading, automated packaging, etc.

Step	Original	Time (min) (all sequential)	Time After SMED implementation (min)	Internal/ External	Comments
1	Stop machine	0	0		
2	Purge screw and barrel	2	2	Internal	Can be concurrent with other activities
3	Collect necessary tools and supplies (wrenches, proper length hoses, etc)	15	2	External	Two minutes to collect a tray with all dedicated parts, 5 minutes if collecting in properly organized tool crib
4	Disconnect 8 cooling lines from mold (threaded), eight	8	2	External	Using quick disconnects
5	Disconnect cooling lines from machine (threaded)	8	1	Internal	Only one quick disconnect to mounted manifold on mold after SMED implementation, instead of eight individuals.

... continued on page 8

... continued from page 7

6	Disconnect ejector plate (threaded)	3	1	Internal	Use quick disconnect
7	Go get A crane and support mold	10	10	External	
8	Remove holding straps (threaded)	8	4	Internal	Use of quick clamps
9	Lift mold from machine	5	5	Internal	
10	Take mold to storage	10	10	External	
11	Retrieve new mold and bring to machine	10	10	External	
12	Load the mold on machine and strap	10+8	2+4	Internal	Original, by feel and manual adjustment and strap with manual threaded straps. After SMED with quick locators and quick clamps.
13	Connect 8 cooling lines to mold (Threaded)	8	2	External	Quick connect
14	Connect cooling lines to machine (threaded)	8	1	Internal	Quick connect
15	Connect ejector plate (threaded)	3	1	Internal	Quick connect

EDUCATION

Plastics Theory and Practice / Plastics 101

Plastics Theory and Practice is an entry-level course designed to introduce participants to basic concepts and techniques used throughout the plastics industry. The course is suitable for individuals in plastics sales, purchasing, marketing, quality assurance, designers, engineers, and managers either entering the field of plastics or interested in broadening their knowledge of materials and processing techniques.

When: November 14th and 15th 2017 (Tue & Wed)
Where: Hampton Inn, 123 E. Carmel Street, San Marcos, California
Time: 8.30 AM to 4.00 PM on both days
Cost: $645 per person (Includes lunch and training material)

Topics Covered:
Plastics Industry Overview, History, Growth, Future
Polymer Chemistry Basics
Plastics Materials, Composites, Alloys, Elastomers
Polymer Structure Properties and Applications
Plastics Terminology
Plastics Tooling: Types of Molds, Gating, Runners, Cooling, Venting, Hot Runner Systems
Plastics Processes: Injection Molding, Extrusion, Blow Molding, etc.
Product Design Basics
Assembly and Secondary Operations
Material Selection Process
Decorating and Printing
Testing and Failure Analysis
Interpreting Data Sheets
Part Costing
Plastics Industry Standards
The Latest in Rapid Prototyping Technology
Plastics Identification
Plastics Recycling

Also, students will receive a variety of useful handouts showing How and Where to get more detailed information concerning a variety of plastics-related topics.

About Vishu Shah:
Vishu H. Shah is a graduate of University of Massachusetts Lowell with Bachelors and Masters Degree in Plastics Engineering. He is also an author of Handbook of Plastics Testing and Failure Analysis, SPE Sponsored book, Used as a textbook in many universities. An active member of SPE, his career spans more than 40 years in Plastics industry mostly having a responsibility as Plastics Engineer in charge of material, product and process development, Technical Services, Compounding operation and Test facilities.

... continued on page 7

... continued from page 6

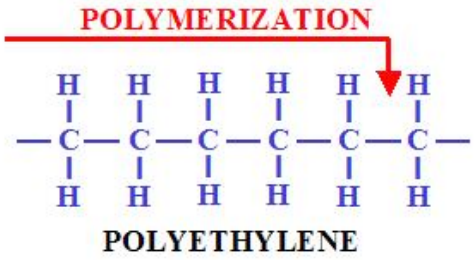
As a President and co-founder of a custom Injection Molding business for eighteen years, he was responsible for the entire manufacturing operation. As a Consultant and Expert Witness, he has worked extensively with companies throughout the world and with many Law firms in the area of failure analysis. He has conducted seminars and short courses on a variety of subjects for supervisors, engineers, purchasing, sales, and marketing personnel along with current Plastics Engineering Certificate program at Cal-Poly Pomona

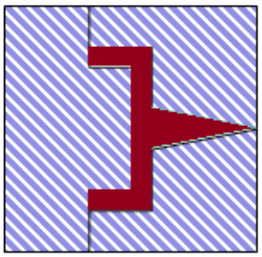
Testimonials from past attendees:

- *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*

Registration:

Registration can done via PayPal or a PO.
> To pay with a PO, please send an email to csj@fimmtech.com with the PO info.
> To pay with a credit card, please click on the button below. Please note you do not need a PayPal account to make the payment, click on 'Continue as Guest'. Click and **go to the bottom of the Online Store** on the





SPE Southern California Leadership

SPE Leadership		
President: Ashley Spittle, Horn	714-423-8050	aprice@ethorn.com
President-Elect:		
Secretary: Victor Okhuysen, Cal Poly Pomona	909-869-2698	vfokhuysen@csupomona.edu
Treasurer: – Michael Espinosa, Triangle Sales	909-957-7412	michael@trianglesalesinc.com
Councilor: Vishu Shah, Consultek	909-465-6699	vishu@consultekusa.com
Membership: Matthew Dauphinee		
Committee Chair		
Technical Program Chair: Suhas Kulkarni/Vishu Shah, FIMMTECH/ Consultek	760-525-9053	suhas@fimmtech.com
Directors		
Past President: Rick Hays, Horn	714-523-8050	rhays@ethorn.com
Director: Kerry Kanbara, Premier Industries	909-906-2332	kerry@piustech.com
Director: Skip Humphry, International Plastics Equipment	951-830-7010	intl.plasticsequip@verizon.net
Director: Tom Tudor, Hi-Tech Instruments	909-647-5515	TomTudor@socalspe.org
Director: Suhas Kulkarni, FIMMTECH	760-525-9053	suhas@fimmtech.com
Director: Matthew Dauphinee, Mission Plastics	909-947-7287	mdauphinee@missionplastics.com
Committee Chairs		
Golf Outing Chair: Kerry Kanbara, Premier Industries	909-906-2332	kerry@piustech.com
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
Tech Program Chair: Suhas Kulkarni/Vishu Shah, FIMMTECH/ Consultek	760-525-9053	suhas@fimmtech.com
Advertisement Chair: Michael Espinosa, Triangle Sales	909-957-7412	michael@trianglesalesinc.com
Buyers Guide Committee Chair:		
Database Expansion Chair: Michael Espinosa, Triangle Sales	909-957-7412	michael@trianglesalesinc.com
Newsletter/Web Content Liaison: Vishu Shah, Consultek Consulting Group	909-465-6699	vishu@consultekusa.com
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

2017-2018 YEAR CALENDAR www.socalspe.org

SEPTEMBER 2017

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

September 28

Evening Technical Meeting

Nanotubes

6:00 PM
Dave & Busters, Orange, CA

OCTOBER 2017

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

No Events

NOVEMBER 2017

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

November 16

Plant Tour
Prestige/Pres-Tek

6:00 PM
Rancho Cucamonga, CA

DECEMBER 2017

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

JANUARY 2018

S	M	T	W	Th	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

No Events

FEBRUARY 2018

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

February 9

MiniTEC

What is new in Medical Device Materials & Processing Technology

Sheraton Park Hotel Anaheim, CA

March 15

EDUCATION NIGHT 6 PM
NHRA Museum Pomona

MARCH 2018

S	M	T	W	Th	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

No Events

APRIL 2018

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May 24

Workshop

Molding, Past-Present-Future

TBD
Irvine

MAY 2018

S	M	T	W	Th	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June 21

Annual Golf Outing

JUNE 2018

S	M	T	W	Th	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Happy 4th!

JULY 2018

S	M	T	W	Th	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August 16

Phoenix Club
Anaheim

AUGUST 2018

S	M	T	W	Th	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	