AUTOMOTIVE PLASTICS NEWS

A PUBLICATION OF THE AUTOMOTIVE DIVISION OF THE SOCIETY OF PLASTICS ENGINEERS

October 2009 - Volume 39, Issue 1

AUTOMOTIVE INNOVATION AWARDS COMPETITION & GALA

HONORING THE BEST IN AUTOMOTIVE PLASTICS

Since 1970, the Automotive Division of the Society of Plastics Engineers (SPE®) International has been honoring the innovation that drives the auto industry. SPE's Automotive Innovation Awards Competition & Gala were designed to recognize successful and innovative plastics applications and the teams who developed them, as well as to communicate the benefits of polymeric materials to OEMs, the supply community, media, and the general public.

In more recent decades, SPE has also recognized outstanding leadership among automotive and plastics industry executives who have helped advance the leading edge of automotive plastics innovation and directed creative and commercially successful ventures.

From its humble beginnings, the SPE Automotive Innovation Awards Competition has grown to be one of the most fiercely contested events in the plastics and automotive industries. Today, it is the largest competition of its kind in the world, and is the oldest and largest recognition event in the automotive and plastics industries.

This year's event is shaping up to be as robust and exciting as last year's highly successful 38th-anniversary campaign. "Over 700 people attended last year's event, which was an excellent turnout," said Maria Ciliberti, 2009 Innovation Awards Program Co-Chair. "We are continuing to build on our successful history and will add more features to this year's event to make it even better.

SPE Awards Program Chair, Maria Ciliberti presents the Vehicle Engineering Team Award to Ford's Paul Mascarenas at the 2008 Innovation Awards Program.

This year's event is scheduled for Thursday, November 12th. Doors will open at 4:30 p.m. to allow time to view displays of this year's nominated parts and accommodate out-of-town attendees. A VIP cocktail reception for sponsors will be held at 5:00 p.m. Dinner and the program will begin at 6:30 p.m. The program is scheduled to conclude by 9:00 p.m. We will also have an Afterglow event from 9 p.m. until 11 p.m. The event will once again be held at the Burton Manor Banquet and Conference Center in Livonia.

Continued Page 8

Attend the 2009 Innovation Awards Program !

See Page 9 of this newsletter for Ticket Information.

Treasurer's Report

Yvonne Bankowski

The SPE Automotive Division bank account balance is in good standing with $114K in checking and $27K in savings for a total of $141K.

The 2009 SPE Golf Outing and Automotive Composites Conference were a success with excellent attendance and sponsorship. The invoices and sponsorship checks are still being finalized so the income and expenses will be reported in the next newsletter.

Taxes are due 11/15/2009.

Social Chair

Bill Pippine

The position of social chair was created by the board in June of 2009 to provide an avenue for working plastics professionals to meet in the southeast Michigan area on a monthly basis. The events are at restaurants and pubs in the area and provide an informal opportunity to network with material suppliers, OEM's, automotive tiers and equipment manufacturers.

The desired results of these events are to grow the SPE membership through showing the value of the large network of automotive plastics professionals in the southeast Michigan area. The events will be held on the last Thursday of the month. Please look for email updates and the SPE automotive website for locations and times.

We have visited Dearborn, Ann Arbor and Troy over the first three months and will be in Auburn Hills and Warren at the beginning of 2010.

Automotive Division Meeting Schedule and Special-Events Calendar

39th-Annual SPE Automotive Innovation Awards Program & Gala Burton Manor, Livonia, MI	November 12, 2009 5:00 pm
Automotive Division BOD meeting American Chemistry Council-Troy	November 30, 2009 5:00 pm
AutoEPCON Best Western Sterling Inn Sterling Heights, MI	April 20, 2010 All day event
ANTEC 2010 Orlando World Center Marriott Resort & Convention Center Orlando, Florida USA	May 16-20, 2010
Division Planning Meeting Location TBD	June 2010
10th-Annual SPE Automotive Composites Conference & Exposition, MSU Management Education Center, Troy, MI	September 2010

Automotive Division Board of Directors meetings are open to all SPE members, and are usually held at the **American Chemistry Council (ACC)** in Troy, MI.
Call Maria Ciliberti at (248) 337-6851 for more information.

www.speautomotive.com

Chair's Message

Maria Ciliberti

Attendance and participation at SPE Automotive Division events is going well this year in spite of challenging times. For example, 45 papers were presented at the ACCE and over 350 people attended the conference. The joint Golf Outing with ACA and the Automotive Division last month was also well attended with over 20 foursomes participating.

Having events like these are important for so many reasons. Personally, now that I am working and living in Frankfurt, Germany I find I value even more the opportunity to attend industry events like ours. The SPE Automotive Division's conferences and activities not only offer the opportunity to learn new things but also allow us the opportunity to talk with one another. These events serve as a place to share with each other our successes, joys, concerns and stresses that we have in our professional (and perhaps even our personal) lives. It's so important to be and stay connected. For me, SPE Automotive serves a critical role in this way. It's great that connecting with others in the industry continues.

The SPE Automotive Division is concluding the judging process for this year's Innovation Awards competition. When we began planning for the Awards competition earlier this year, there was a concern that there would be few plastic innovations this year due to the past 4 consecutive years of downward automotive sales, continual reduction in engineering staffs, as well as the global economic crisis. So it is with great pleasure that I share with you what we have found.

SPE Automotive has received the same number of innovation nominations this year as we did last year, with just over 50 submissions. Furthermore, the Automotive Division in cooperation with SPE's Automotive Chapter in Germany found another 20 plastic innovations to consider. So fear not ladies and gentlemen. Plastic automotive innovations continue to be commercialized due to the value it brings to molders, tiers and OEMs.

Another interesting aspect of this year's nominations is that so many of the innovative designs were only possible BECAUSE plastics were used. What a gratifying feeling it brought to me to see real life examples proving what we've always said about our industry: that is, 'Plastics makes it possible'! So I encourage all of you not to miss this year's Innovation Awards Gala for you will be truly amazed what parts, designs and materials have commercialized.

As a result of the Innovation Awards planning, it became clear to me that there are so many opportunities to truly collaborate with other plastic automotive industry participants who reside OUTSIDE of North America. So many things are happening in the plastics automotive industry beyond the North American borders. We at the SPE Automotive Division plan to integrate our efforts on a truly globally scale as we move forward. Reaching broadly is easier if we have people involved from around the world. So if you or someone you know would like to get involved in this international integration effort, please let us know.

As always, thank you for your participation and membership in SPE Automotive. Any comments or suggestions how we can make the association stronger or better are welcomed.

Education Report

Monica Prokopyshen

It's that time of year when the SPE Automotive Division (SPE AD) celebrates the most innovative uses of plastics in automotive design. At this time we not only look at the future of plastics, but we reflect on the innovations that have stood the test of time and enjoyed widespread implementation.

As Josh Madden and I waited in the lobby of the A. Alfred Taubman Center for Design Education in Detroit, I was reminded of two past award banquet themes, "The Art of the Part" and "The Power of Plastics". I think the photos explain why.

The two story metal sculpture below is comprised of body sheet metal, a fender, rails and assorted chassis parts. Josh demonstrates the power of plastics by holding up a light weight carbon fiber fender with one hand.

The Art of the Part - Corvette Carbon Fiber Fender

Josh Madden demonstrates
The Power of Plastics

The American Chemistry Council, Plastics Division's Jim Kolb and Barbara Robertson organized this event to provide a plastics overview for 2 groups of College for Creative Studies (CCS) transportation design students and brought along handouts and a number of innovative parts, including this fender. Josh and I were there to assist in answering student questions. Each class is working on projects that have significant weight and design challenges.

Josh Madden, Jim Kolb and professor Clyde Foles discuss an agricultural spray vehicle project before the start of class. In the background, one of the students is discussing a spray boom.

Innovation Awards Program

Continued from Page 1

SPE's Innovation Awards Gala is the largest competition of its kind in the world. Dozens of teams made up of OEMs, tier suppliers, and polymer producers work for months to hone submission forms and presentations describing their part, system, or complete vehicle module and why it merits the claim as the 2009 Most Innovative Use of Plastics.

This year's competition will feature awards for best innovation in the following categories:

- **Body Exterior,**
- **Body Interior,**
- **Chassis/Hardware,**
- **Environmental,**
- **Materials,**
- **Performance/Customization** (Automotive Aftermarket),
- **Powertrain,**
- **Process/Assembly/Enabling Technologies,**
- **Safety.**

In addition, the Hall of Fame Award is presented to a part or application that has been in continuous commercial production for 15 or more years. We have significantly revamped our sponsorship opportunities for this year's event by adding several new and exciting levels, which are packed with features our past sponsors have requested. Levels range from Bronze at $4,000 all the way up to Program Sponsor at $50,000.

We look forward to another record-setting event,which will incorporate elegance, intrigue and one of the year's best networking opportunities. Plan now to attend the most spectacular event of the year. We fully anticipate a sold-out event so plan accordingly so you don't miss out. If you have any questions, please contact Jeff Helms, 2009 Innovation Awards Co-Chair at (248) 377-6895.

Attend the 39th Annual Innovation Awards Program

Don't miss this fantastic evening. See first hand the lates tinnovations in the award categories of Body Interior, Body Exterior, Materials, Environmental, Performance and Customization, Powertrain, Chassis/Hardware, Safety, and Process / Assembly / Enabling Technologies. All 48 nominated applications will be on display for you to review in detail. The Automotive Division Innovation Awards Gala is an evening you do not want to miss!

Individual tickets are $160 each, a table of 10 is $1,500, and includes corporate signage. For ticket sales, please contact Pat Levine at (248) 244-8993, or fill out the ticket order from on the following page.

2008 SPE Automotive Division Grand Award Winner

"Most Innovative Use of Plastics"

Twin-Sheet Blow-Molded Fuel System on the 2007 MY BMW® 7 Series Sedans

The Grand Award Winning Team: Dave Hill, Pam Graham & Michael Dziatczak

Ticket Reservation Form

2009 SPE Automotive Division

Automotive Innovation Awards Program

November 12, 2009

Burton Manor

Livonia, Michigan, U.S.A.

Nomination Displays Open at 5:30 p.m.
Dinner Served and Program Begins at 6:30 p.m.
Program Ends & Afterglow Begins at 9:00 p.m.

eTicket Registration Prices are $160 USD / seat or $1,500 USD for a Table of 10 Seats (which includes Corporate Signage)

TO RESERVE TICKETS:

Complete and fax this form to (248) 244-8925, or Mail the original form with credit card information or check (Payable to **SPE Automotive Division**) by November 10, 2008 to:

Society of Plastics Engineers - Automotive Division, 1800 Crooks Road, Suite A, Troy, MI 48084

Ticket reservations are not confirmed until payment is received. Once payment is received, a confirmation email will be sent to you verifying your order. For further information, you may contact Pat Levine by phone at (248) 244-8993 or by email at spe_automotive_detroit@yahoo.com

Name:_____

Company Name: _____

Mailing Address:_____

City: _____State/Province:_____ Postal Code:_____

eMail address:_____

E-mail for Contact Person: _____

Phone: _____Fax: _____

Signature:_____

Number of Tables Requested: _____@ $1,500.00 / table = _____

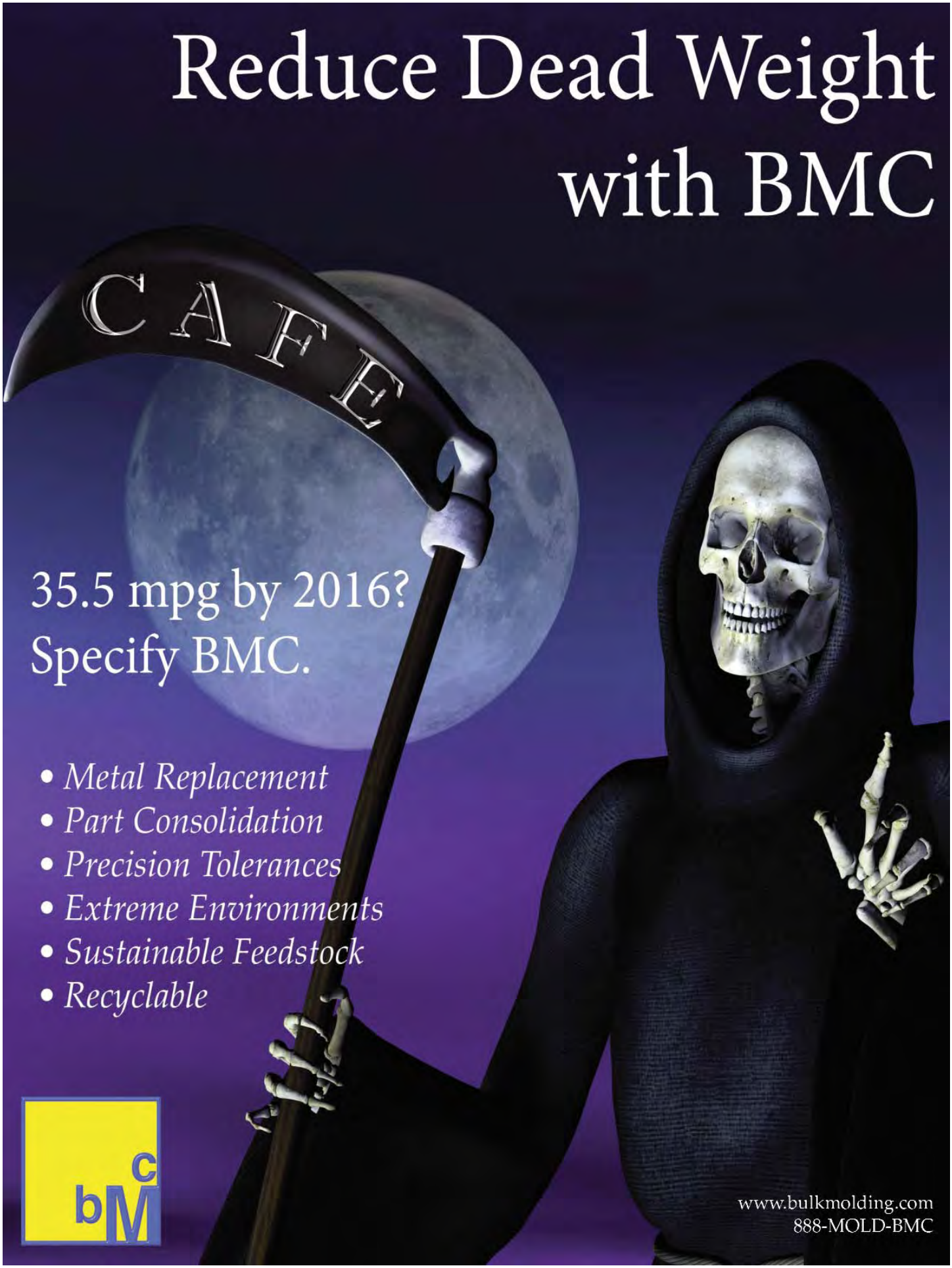
Number of Tickets Requested: _____@ $ 160.00 / ticket = _____

Number of vegetarian meals: _____Total amount due (in USD): $ _____

☐ Check forthcoming ☐ Check enclosed ☐ Bill my credit card

Type of Cards Accepted: VISA / MC / Amex Card Number: _____

Name on card: _____Exp. Date: _____


Reduce Dead Weight
with BMC
CAFE
35.5 mpg by 2016?
Specify BMC.
• Metal Replacement
• Part Consolidation
• Precision Tolerances
• Extreme Environments
• Sustainable Feedstock
• Recyclable
bmc
www.bulkmolding.com
888-MOLD-BMC

AUTOMOTIVE SPE INNOVATION AWARDS COMPETITION & GALA

HONORING THE BEST IN AUTOMOTIVE PLASTICS

Despite the difficult times in the industry, over 700 people attended the 2008 Gala. Representatives from the major OEMs, Suppliers, and Media were on hand to honor the latest innovations in automotive plastics.

"Most Innovative Use of Plastics" Trophy

Board of Directors Meeting Minutes

Monica Prokopyshen

ATTENDEES
Ron Price, Maria Ciliberti, Monica Prokopyshen, Jeff Helms, Gary Kogowski, Nippani Rao, Peggy Malnati, Kevin Pageau, Gus Chen, Johanne Wilson, Yvonne Bankowski, Tom Pickett, Brian Grosser, Anthony Gasbarro, Jackie Rehkopf, David Reed, Norm Kakarala, Mike Masserant, Tricia McKnight, Ed Garnham, Bill Pippine, Mike Whitens, Chuck Jarrett, Fred Deans, Bonnie Bennyhof

Meeting held at ACC in Troy, 5:30 p.m. - 8:00 p.m.

Education
The Plastics Museum was notified of the firm Plastivan schedule for 2009 and tentative schedule for the first half of 2010, pending SPE AD budget completion and division finances. There is no budget for an ACC/SPE College for Creative Studies (CCS) design project this year. Instead, the ACC's Jim Kolb is presenting a guest lecture Oct. 1 and bringing samples for display. SPE AD's Monica Prokopyshen and Josh Madden will support this effort in person.

Treasurers Report
Ending Balance: 114, 000 in saving/checking

Membership
650 down from 860 from the beginning of the year. 52 new members. 327 renewed members.
Job fair, 32 people registered, 20 people showed up. 3 recruiters participated. Location was good-it was the right size for the number of people. Target next spring at the earliest for the next job fair. New members list for next newsletter. Propose discounted membership fees, sponsored by automotive division. Evaluate timing after IAG financials are complete.

SPE Social Programs
Bill Pippine discussed plans for the September networking event in Dearborn. This month's networking event is at Carson's, Thursday, Sept 24th in Ann Arbor. The first one in Dearborn had 10 people; many people were on vacation the last 2 week's of August, affecting attendance. The next event is the last Thursday of October (29th) in the Troy, Michigan area.

Golf Outing
Magna sponsored the dinner at the recent ACA / SPE AD joint golf outing. PETs sponsored the luncheon. Twenty-one foursomes participated at Fieldstone on Sept. 14, 2009.

Antec 2010
No update.

AutoEpcon
No update.

ACCE Conference
Peggy reported on the program status: 18 exhibitors, 12 Associate & 4 Premier sponsors, 46 papers presented, along with 7 keynotes and 1 panel discussion and 1 networking reception. The conference was Sept. 15 and 16, 2009 and was attended by 358 people (12 fewer than last year), which was excellent turnout given the economy. Event income is projected to be close to breakeven or to have a small deficit. Students from 5 universities participated in poster competition. Furthest students came from North Dakota. Hot composite vehicles were provided by OEMs. Lots of innovation discussed and audience was upbeat and excited about changes in "new" auto industry

Councilor's Report
No news to report. See Councilor's report in this newsletter

Inter-society
No news to report.

Awards Ceremony (IAG)
Category captains need to read, understand & summarize nominations. Make sure nominations are good and in correct category. 37 total submissions to date. IAG date November 12, 2009. BOD judging date is October 8/9 at Ticona. BRJ date is October 14, 2009 at Ticona. Currently projecting a deficit. Require follow-up on sponsorship. Have reduced expenses, significantly. Bonnie is working with Exxon to sponsor the BRJ dinner.

Marketing/Communications (MARCOM)
All new ACCE CD contents have been posted (instead of waiting 4-6 months). Highest number of trade media and business on-site this year and requesting many interviews. One of our committee people will present highlights of the ACCE conference at the Composites Europe Conference (as part of a swap).

Innovations Awards Gala pre and post-gala ads have been distributed to magazines. 14 media and association ad swaps for IAG.

Website
Since April of this year, we've been sending SPE AD e-blasts to about 1500 people directly from the website. Website unique hits also up significantly. In April 2008, stats were 4,787 unique hits. In August 2009, we had 14,493 unique hits. Lightspeed IAG content now hosted on speautomotive.com site.

Newsletter
Solid sponsorship. Kevin indicated that the deadline for submitting articles for the next newsletter is Sept. 30th. Committee chairs need to submit their updates.

New Business
Composites Division wants to link to our site. Approved.

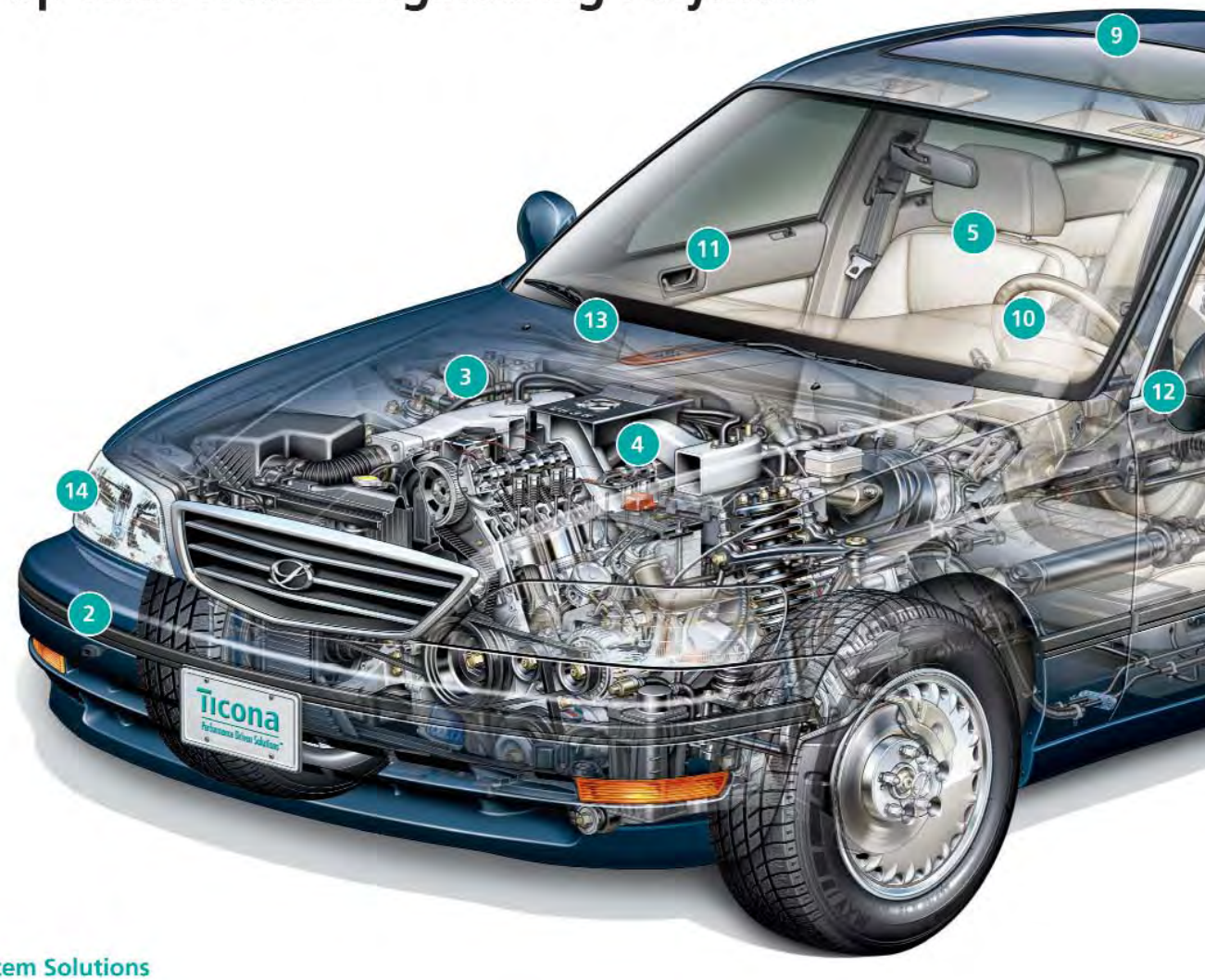
Propose SPE AD stewardship of Formula SAE student competition (May 2010).

Next Meetings
Oct. 8/9 BOD Judging Meeting
November 12, 2009 IAG
December 7, 2009 BOD


arotran® resins
neulon® additives
you demand perfection.
so do we.
Picture-perfect finishes. Ultra-smooth surfaces. Virtually non-existent paint pops. And infinitely greater design freedom for Class A exterior panel applications. That's what you'll get with Ashland thermoset composite polymers. Our Arotran® unsaturated polyester resins and Neulon® low profile additives offer high quality surface finishes and economic benefits — reducing tooling costs and lowering part weight by up to 30%.
Discover what OEMs around the globe already know: Ashland resins and additives in sheet or bulk molded composite parts provide a better alternative to steel.
www.ashland.com
ASHLAND
Responsible Care®
ASHLAND.

Don't Let Metal Weigh You Down

Lighten Up With Ticona Engineering Polymers



Integrated System Solutions

1 Door/Lock/Window
Hostaform®/Celcon® acetal copolymer, Celstran® LFRT, Celanex® PBT

2 Front End Modules
Celstran® LFRT, Celanex® PBT, Impet® PET

3 Electrical
Celanex® PBT, Fortron® PPS, Vectra® LCP, Hostaform®/Celcon® acetal copolymer

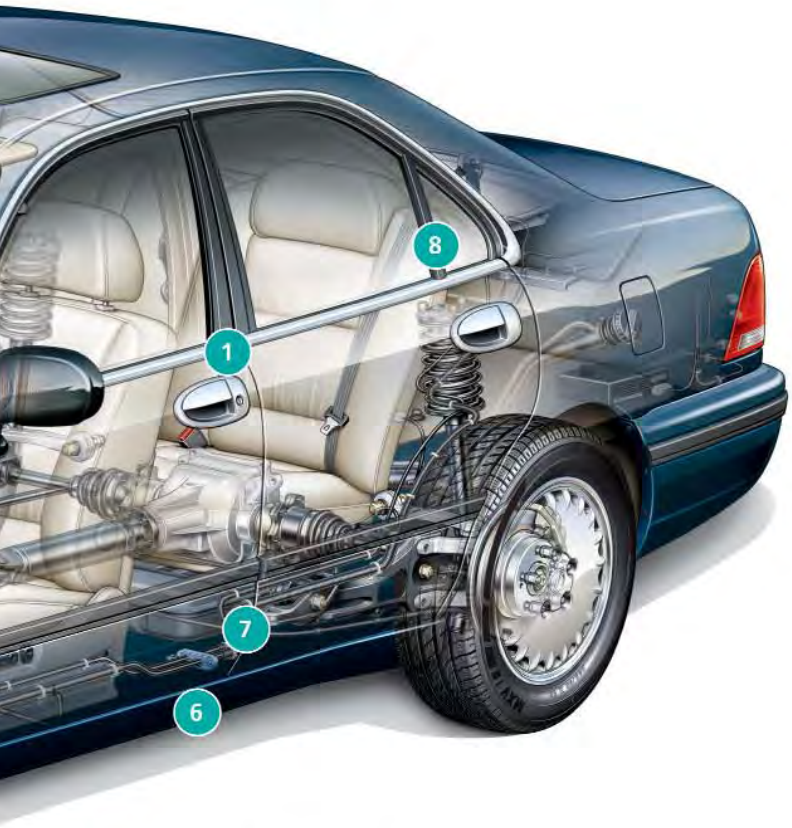
4 Power Distribution
Celstran® LFRT, Celanex® PBT, Vectra® LCP, Fortron® PPS

5 Cockpit Environment
Celanex® PBT, Vandar® PBT, Riteflex® TPC-ET, Hostaform®/Celcon® acetal copolymer

6 Underbody Skid Plates
Celanex® PBT, Celstran® LFRT

7 Advanced Fuel Delivery
Hostaform®/Celcon® acetal copolymer, Fortron® PPS, Celanex® PBT, Riteflex® TPC-ET

8 Seating & Restraint
Hostaform®/Celcon® acetal copolymer, Celstran® LFRT, Riteflex® TPC-ET, Celanex® PBT, Vandar® PBT



9 Multi-functional Roof
Hostaform®/Celcon® acetal copolymer, Celanex® PBT, Fortron® PPS, Celstran® LFRT

10 Instrument Panels
Celstran® LFRT

11 Speaker Grilles, Knobs, Handles and Levers
Hostaform®/Celcon® acetal copolymer, Celstran® LFRT, Celanex® PBT

12 Mirror Housings
Hostaform®/Celcon® acetal copolymer, Celanex® PBT, Celstran® LFRT

13 Wiper Plenums
Hostaform®/Celcon® acetal copolymer, Celanex® PBT, Celstran® LFRT

14 Lighting Housings
Celanex® PBT, Vectra® LCP, Fortron® PPS

www.ticona.com

World-Class Engineering Polymers

Celanex® Thermoplastic Polyester
- Outstanding thermal and chemical resistance
- Toughness
- Rigidity
- Exceptional dimensional stability
- Superior electrical properties

Hostaform®/Celcon® Acetal Copolymer
- Excellent mechanical properties
- Inherent lubricity
- Chemical and fuel resistance
- Broad temperature use range
- Aesthetics including low gloss and colors

Celstran® and Compel® Long Fiber Reinforced Thermoplastics
- High stiffness
- Exceptional toughness
- Long-term dimensional stability
- Wide temperature use range
- Scalable electrical properties

Fortron® Polyphenylene Sulfide
- High continuous use temperature
- Resistance to auto fuels and fluids
- Inherent flame resistance
- High strength and dimensional stability

Impet® Thermoplastic Polyester
- Outstanding physical properties
- Superior thermal and chemical resistance
- Toughness
- Rigidity
- Dimensional stability
- Wide temperature use range

Riteflex® Thermoplastic Polyester Elastomer
- Excellent toughness and fatigue resistance
- Outstanding chemical resistance
- Good low temperature impact
- Wide temperature use range

Vandar® Thermoplastic Alloy
- Excellent chemical resistance, ductility and stiffness
- High impact strength at low temperatures

Vectra® Liquid Crystal Polymer
- Superior thermal characteristics and dimensional stability
- High strength and modulus
- Broad chemical resistance
- Low mold shrinkage
- Excellent electrical properties
- Inherent flame resistance

Ticona
Performance Driven Solutions™


EFI
electra finishing,inc.
Injection Molded Plastics
Decorating & Assembly
Southeast's Most Advanced...
Applying
Tomorrow's
Technology...
...Today
electra-finish, inc.
1-877.240.2423
www.electra-finish.com

Membership Report

Johanne Wilson

Membership these days is a good news - bad news story. The good news is that we have had over 100 new members join or renew in our Automotive Division since the beginning of the year. This, as well as the attendance to the conferences held this year, are a great testament to the value members see in this organization. We are going back to listing the new members names in the newsletter - Welcome!

The bad news however is as you imagine, like many other professional organizations, we have a greater number not renewing their membership, which has resulted in a net loss of about 20% so far this year. This is due to a variety of reasons, the main one being that companies and individuals are cutting spending budgets. However SPE membership is an expense that you should seriously consider before dropping - it is more than a publication and more than a network.

Through the several industry events, and access to thousand of papers, SPE enables you to be on top of the trends in your industry, and to position you and your company to be able to act on those trends. I cannot stress enough the value that I have, as marketing manager at a chemical company, been able to glean through the contacts I have made and the information I have learned.

SPE Automotive Division, together with the Detroit Section organized a second Job Fair in September at the SPE ACCE. It was a small event, and as in the previous one it provided attendees enough time to spend quality time with recruiters. Thanks again to Delta Staffing for providing resume advice. Other recruiters in attendance were Adecco Engineering, and Global Technology Associates.

We do not plan any more job fairs this year, but will discuss whether to do this type of event on an annual basis at the next board meeting. Please let me know your views by attending the meeting or email membership@speautomotive.com. Thanks go to the volunteers who helped in the planning - Dan Dowdall, Leonard Marchik, Bill Pippine, Pat Levine and Vineet Kapila.

As always I welcome your suggestion and comments and I encourage you to get involved in the organization.

New members since June 2009:

Denise Carlson	Denso Internat'l America
Anna Jaffe	MIT
James Jonza	3M Company
Sven Druwen	A Schulman GmbH
Matthew Kaye	Clinton Aluminum and Stainless Steel
Venkatakrishnan Umamaheswaran	SABIC Innovative Plastics
Chuck Jarrett	SABIC Innovative Plastics
Vijayakumar Kumaravelu	
James Otis	Dow Chemical Company
Torben Ruby	
Michael Miga	Consolidated Metco
Richard McCann	Analog Devices
Shashank Karnik	
Cheryl Weckle	The Dow Chemical Company
Erin Mclaughlin	
Mark Colston	Schaeffler Group
Balaji Doraiswami	
Thomas Barr	AkzoNobel - Soliant
Yvonne Bankowski	
Josh McIlvaine	DuPont
Eric Heilshorn	Alcan Baltek
Ronald Hertzer	
Daniel Heberer	Huntsman Polyurethanes
Leonard Fifield	Pacific Northwest National Laboratory
Andrew Wasco	
Deborah Viges	Toray Resin Company
Christopher Murphy	Dupont
Cynthia Hammer	L Lewallen Co Inc
Takashi Inoue	Yamagata University
Mark Paddock	Arburg USA Inc
Jeffrey Christensen	
Daniel Catalano	Zotefoams Inc
Jennifer Stewart	SABIC Innovative Plastics
James McKinnon	
David Haydon	Sky-Tek
Richard Barker	Dow Chemical (Australia) Ltd.
Paul Van Wyck	Target Recycling Services Inc
Pietro Barteselli	Jacuzzi Europe Spa
Harry Lee	Sun Industries
Tom Walczak	Dickten Masch Plastics
Mark Innes	NRC (National Res. Council of Canada)
Mark Clay	Channel Prime Alliance
Andrew Sanders	Sumitomo Bakelite North America Inc
Peter Manders	ExxonMobil Chemical Comp
Richard Roth	Rosler USA
Clayton Meeks	
Manish Saraswat	Lyondell Basell Industries
Christopher Morin	Exide Technologies
William Mounts	Omico Plastics, Inc.
Yoshihiro Inui	Sekisui Chemical
Jose Garcia	automotive lighting
Artemis Cheng	Orange Plastic Corp.
Joe Roznowski	Fraenkische USA
Peter Gutmann	University of Bayreuth
Peter Contadeluci	Guardian Automotive Products, Inc.
Mary Jones	The Dow Chemical Company
William Pippine	
Francis Mirabella	Mirabella Practical Consulting
Solutions, Inc.	
Kinsey Sovern	
Paul Kuklych	
James Szatkowski	
Angela Neagos	
Glenn Cowelchuk	
James Yang	KPC
Travis Waters	Milliken Chemical
William Trepka	
Andrew Sics	
Adam Deedler	Toyota Technical Center

Councilor's Report

Nippani Rao

As the Automotive Division Councilor, I attended the council meeting in Chicago, June 20-21, 2009 and the following summarizes the highlights. Details on budget, Staff report, Bylaws and Policies and incoming President, Paul Anderson's speech are available on the SPE Website.

Membership

Membership as of June 1, 2009 is 16,039. The membership is not stabilized yet and continue to trail 2008 rates. The basic reason we all know all too well, is THE ECONOMY. A number of ideas were discussed and several approaches will be implemented later this year and also in the future years. Corporate affiliate program and the attracting younger generation members (X and Y) are the key aspects.

General Financial Condition

Lower membership means lower income. The budgets are cut in every area. SPE staff has been reduced from 26 in 2008 to 15 in 2009.Number of V.P's has been reduced from 15 to 6.

SPE has sold the building and moving into a smaller office. Cost savings have also forced a travel ban, reduction and elimination of contractors, cancellation of seminars and postponement of Eurotech from 2009 to 2011

SPE is more reliant on its contracted publishing revenues and incomes from NPE 2009. ANTEC/NPE is expected to bring in $320K

Council approved the 2009 budget. Income $5.14Million and expenses $5.0375M with a Net $102,500.

Bylaws & Polices

Electronic participation and voting rights at council-Approved.

Electronic participation at Annual meeting and special business meetings-Approved.

Size of V.P's from 9 to 6- Approved. Executive Committee from 15 to 11.

A full text of changes are on the SPE extranet.

Paul Anderson- Incoming President's Comments - A full text is available on the SPE Council extranet.

Key appointments are:

Scott Owen, V.P,
Brent Strong V.P,
Vijay Boolani, Secretary
Jim Griffing , Treasurer

Membership values will be improved by determining which technologies SPE is missing, student outreach and launching an on-line encyclopedia. SPE is going more on-line with Facebook, Linked-In, Plastics Engineering and Virtual conferences.

Membership growth strategy will take three-prong approach: Technology, Geography and Generation X&Y.

Other General Information

Eurotech has been moved to 2011 in Barcelona, Spain

European Thermoforming Division conference April22-24, 2010 in Antwerp

New sections include Central Mexico and Middle East.

A corporate affiliation program is being announced at ANTEC@NPE to provide corporations access to SPE info, technical and marketing for a fee of 5K, 10K and 15K.

SPE Foundation awarded $138,500 in scholarships to 33 students in 2008. A surplus of $44K was achieved in 2008.

Jim Griffing, Treasurer will have presentation on the budget in late September or early October.

Next Meeting in Connecticut, Oct.18

Alternative Methods To Enable Powder Priming Of SMC

Hamid G. Kia, Bhavesh Shah, Christina Hicks
General Motors R&D Center, Warren, MI

ABSTRACT

Our previous work has shown that the newly developed SMC systems are powder primer ready in straight through operations. However, after an extended stoppage in the operation such as July shutdown, the success of the powder application depends on the severity of temperature ramp in the oven.

To overcome this issue, in this work, an alternative short term preheating is proposed after any long term humidity exposure in the plant. It was observed that using the newly developed experimental low moisture SMC/conductive coating systems, only four minutes of preheating in the oven at 180°C, or three minutes of IR exposure was sufficient to enable powder priming in a plant simulation without popping.

The preheating approach also allowed the use of conventional conductive coating on the experimental low moisture SMC without compromising its powder capability. Similarly, using this method, it was possible to powder prime conventional SMC in combination with the experimental conductive coating with no popping. However, the preheating method could not benefit the combination of conventional-SMC / conventional-conductive-coating.

INTRODUCTION

The use of powder primers on SMC body panels has become a major challenge for the automotive industry. The benefits of powder primers are well known, but the downside is that powder primers are not compatible with the current high moisture absorbing plastics in general [1, 2], and SMC in particular [3-5]. The body panels molded with SMC show paint popping in the bake oven of the powder primer, resulting in an unacceptable surface finish.

Based on the work done in our previous studies, it was concluded that a combination of an experimental low moisture SMC and an experimental conductive coating, 493S, was required in order to powder prime SMC that had a high moisture level with no popping [6-8]. The advantage of using this combination was that no modification in the paint process was needed to powder prime the parts at GM assembly plants. However, the plant trials showed that the new materials are not robust and are very sensitive to the powder bake temperature profile and the amount of moisture absorbed [8].

To overcome the inflexibility of the narrow range of materials and process parameters that can be used in production, an alternate method of powder priming SMC is proposed which involves heating the top surface of SMC panels prior to powder application.

Although this modified method requires some deviation from the standard procedure used in GM assembly plants, it ensures that the process is very robust and opens the door for some commercially available materials to be used in the powder prime application. The modifications can be made in the assembly line by installing heating devices such as a bank of infrared lamps between the E-coat booth and the powder booth.

It should be noted that this pre-powder heating is required only after the extended shutdown period when the SMC panels have a high moisture content. The experimental low moisture SMC, if run straight through with no line stoppage, does not show any popping [5-8]. Therefore, the suggested modification in the process applies only to parts that have high amounts of moisture due to storage in the strip area.

The main objective of this study was to investigate the effectiveness of the new process to produce a pop free surface after the powder application. The process parameters such as heating

conditions and subsequent cooling time were optimized for different SMC formulations. The new process was also tested for its robustness to changes in key variables such as the amount of moisture and the powder bake temperature profile.

MATERIALS AND PROCEDURES

Materials:

Both commercially available SMC and experimental low moisture SMC panels were tested. The list is shown in Table 1. SMC-1 is a commercially available class A SMC based on toughened class A polyester resin and is made by Continental Structural Plastics. It is currently being used by GM in Cadillac XLR and Chevrolet Corvette C6 hoods. SMC-2 is an unsaturated polyester based commercially available SMC made by Meridian Automotive Systems. It is currently being used in Corvette C6 decklids and Hummer H2 fenders. SMC-3 is an experimental low moisture SMC developed by Meridian Automotive Systems in collaboration with AOC. It is one of the experimental low moisture SMC formultations currently being tested.

Two different conductive coatings, CC-1 and 493S, were used to enable powder priming of the panels. Both conductive coatings are made by Redspot Paints and Varnishes Co., Inc. CC-1 is a conventional 1K conductive coating while 493S is an experimental 2K conductive coating. A commercially available powder primer from PPG, PCV Envirocron 70104, was also used to prime the panels. This primer is a polyester epoxy hybrid that is used by GM at the Lordstown plant on compact cars such as the Chevrolet Cobalt and Pontiac G5.

Procedures:

The procedures for molding, cleaning, and conditioning of the SMC panels have been described in detail in a previous report [4], and are not repeated here.

Powder Priming and Popping:

Panels were first prepared and dried (24 hours at 110°C) per the procedures described earlier [4]. They were then coated with either the commercial or the experimental conductive coating at PPG in Flint, MI. These panels were brought back to the R&D Center in Warren, MI. They were then dried for 24 hours at 110°C followed by an exposure to 90%RH at 40°C for 48 hours unless otherwise specified. These panels were then sealed in Ludlow moisture barrier bags and transported to PPG for powder spray on the same day.

Prior to the powder application, the panels were heated for a specified time using forced air convection batch ovens and/or infrared lamps. After powder application, the panels were inspected for popping/foaming with the naked eye and with a microscope. The finish of the panels was rated as severe defects (red color), major defects (orange color), moderate defects (yellow color), minor defects (lime color) and no defects (green color). Only green colored panels were qualified as production ready.

RESULTS AND DISCUSSION

Six different SMC systems, as shown in Table 1, were evaluated in this study. They were comprised of two commercial and one experimental low moisture SMC's coated with either a commercially available conductive coating, CC-1, or with an experimental conductive coating, 493S. Of the six systems tested, the

Product Code	Description	Supplier
SMC Formulations		
SMC-1	Polyester based toughened class A SMC	Continental Structural Plastics
SMC-2	Polyester based toughened class A SMC	Meridian Automotive Systems
SMC-3	Experimental low moisture SMC	Meridian Automotive Systems
Conductive Coatings		
CC-1	1K coating	Redspot Paints and Varnishes Co. Inc
493S	Experimental 2K coating	Redspot Paints and Varnishes Co. Inc
Powder Primer		
PCV Envirocron 70114	Polyester epoxy hybrid powder	PPG Industries

Table 1: List of materials.

Continued Page 21

Alternative Methods To Enable Powder Priming Of SMC

Continued from Page 19

experimental low moisture SMC coated with the experimental conductive coating, SMC-3/493S, was studied in a separate experiment with a faster powder bake temperature profile as it does not show popping when baked under the slower heating rate used in this study. Two different heating methods were tested to heat the SMC panel prior to the powder application. First, the minimum temperature and the exposure time to yield a pop free surface were determined.

Then, after heat treatment at these conditions, it was determined whether panels can be stored at ambient conditions for a reasonable amount of time without causing any popping when powder coated. Once the heating conditions were optimized for each SMC, the effects of key variables such as the amount of moisture and the powder bake temperature profile were also studied. The results of these studies are presented in the following paragraphs.

Using Forced Air Convection

The minimum temperature and heating time required to eliminate popping varied among the different SMC systems tested. For instance, only ten minutes of heating at 180°C was sufficient to eliminate the powder popping in SMC-2/493S SMC, while SMC-1/493S needed thirteen minutes to achieve the same quality. SMC-3/CC-1 needed the least heating time, only six minutes at 180°C eliminated the popping (Table 2).

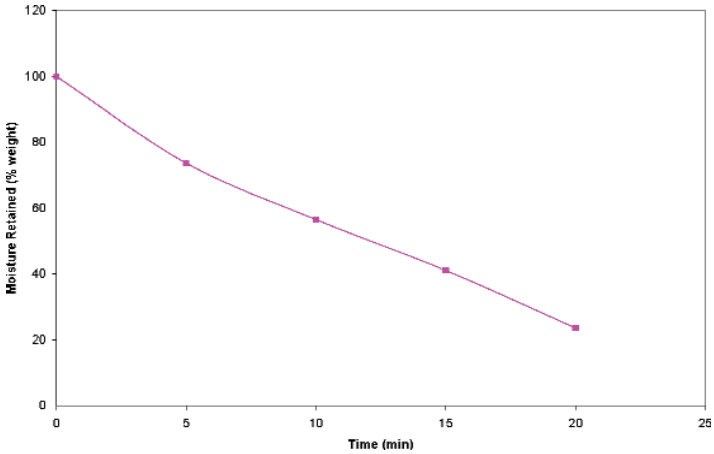


Figure 1: Moisture desorption chart for typical experimental low moisture SMC in an oven preheated to 180°C.

Time (min) \ Temp (°C)	120	150	180
4			
6			
8			
10			

Table 2: Powder popping on SMC-3/493S SMC heated in the convection oven prior to powder application.

Figure 1 shows the typical moisture desorption profile of experimental low moisture SMC at 180°C. For instance, it can be seen that after 6 minutes of exposure to the 180°C oven, at least 65% of the original moisture is still retained. Thus, it is fair to conclude that the SMC would have a significant amount of moisture left in it at the time of powder application in the above mentioned experiments.

It is interesting that this moisture, however, did not cause any popping on the powdered SMC panels. This indicates that the moisture close to the surface is the root cause for popping and not the total moisture content. Moisture from the core of the panel probably takes a long time to travel to the surface and hence does not contribute to the powder popping issue.

Using Infrared Lamps

The procedure to prepare and condition the panels in this experiment was similar to the one discussed earlier. The only difference was the type of heating method employed. In this case, a bank of infrared lamps was used to heat the panels for a specified amount of time. All panels showed improved results with a reduced amount of popping after heating prior to the powder application compared to the control panels, which had no prior heat exposure. It was observed that 5 minutes of infrared exposure was equivalent to 6 minutes of convection heat at 180°C oven (Table 3).

Robustness of SMC-3/493S:

In this study, the new method of heating SMC prior to the powder application was implemented

Continued Page 22

Continued from Page 21

SMC/Coating / Time (min)	SMC-3/493S
0	
3	
4	
5	
6	

Table 3: Powder popping on SMC-3/493S SMC heated under infrared lamps prior to powder application.

under various conditions to better understand its robustness. The panels were first prepared and conditioned per the procedure described earlier. They were then subjected to 90%RH/40°C environment for 48 hours. Prior to the powder application these panels were heated for specified duration using one of the two heating methods, convection batch oven or infrared lamps.

It was observed that just six minutes of heating at 180°C convection oven, or 5 minutes of infrared heating was sufficient to enable up to three hours of delayed powder application (Table 4).

SMC/Coating / Time (min)	SMC-3/493S
10	
45	
60	
90	
120	
180	

Table 4: Powder popping on SMC-3/493S SMC preheated under infrared lamps for five minutes and then cooled at ambient prior to powder application.

Effects of Moisture:

Another key variable that could increase or decrease the heating and cooling time prior to the powder application is the amount of moisture in the SMC. To that end the effect of moisture content was also studied. All SMC systems were tested at two different levels of moisture exposure in this study, i.e., 24 hours and 48 hours at 90%RH at 40°C. The moisture uptake after a 24-hour exposure is a closer simulation of moisture uptake in a plant environment, which normally is at less than 60%RH. The experiments showed that SMC-2/493S panels conditioned for 24 hours at 90%RH and 40°C did not show any popping after heating for as little as 3 minutes using infrared (Table 5).

Heating Method	Time (min)	24h at 90%RH/40°C
Control	0	
	4	
Oven @ 180°C	6	
	3	
IR	4	

Table 5: Effect of moisture on powder popping on SMC-3/493S SMC heated prior to powder application.

CONCLUSIONS

Heating SMC prior to the powder application eliminated powder popping caused by excessive exposure to humidity. The extent of heating depended on the type of SMC and conductive coating, the amount of moisture in SMC and the powder bake profile. Using the experimental low moisture SMC coated with 493S experimental conductive coating, only four minutes of heating in the oven at 180°C or three minutes of IR exposure was sufficient to enable powder priming in a plant simulation without popping. If implemented, this approach requires slight changes in the bill of process for panels stored in the strip area.

REFERENCES

1 - Cleveland, M., Rao, N., Migda, F, and Hulway J., "Low Paint Emissions and Low Vehicle Mass: Conflicting Challenges?", International Coatings for Plastics Symposium, June 4-6, 2001, Troy, MI., USA

2 - Marsh, G.,"Manipulating Matrices", Reinforced Plastics, July/August 2003 Page 22-27

3 - Jacob, A. ,"Stopping The Pops - The Final Challenge for SMC" Reinforced Plastics, Nov. 2002 Page 38-41

4 - Kia, H.G., Mitchell, H.A., Wathen, T.J., Shah, B. and Berger, C.R.. "Powder Priming of SMC, Part I: Assessment of the Current Technologies", Journal of Composite Materials, vol. 22, 2005.

5 - Kia, H.G., Mitchell, H.A., Wathen, T.J., Shah, B. and Berger, C.R.. "Powder Priming of SMC, Part II: Failure mechanism", Journal of Composite Materials, vol. 22:, 2005.

6 - Kia, H.G., Wathen, T.J., Shah, B., Robbins, J., Kleese, E., and Seats, R. "New Developments in Powder Priming of SMC", JEC Composites Conference, March 2006, Paris, France.

7 - Kia, H.G., Wathen, T.J., Shah, B., and Berger, C.R. "Development of Conductive Coating for Powder Priming of SMC", American Composites Manufacturers Association, October 18-20, 2006, St Louis, MO, USA

8 - Kia, H.G., Shah, B., Hicks, C., "Plant trials for powder priming of SMC", Society of Plastics Engineers Automotive Composites Conference & Exposition, September 11-13, 2007, Troy, MI, USA

Automotive Division/ Automotive Composites Alliance Golf Outing

The annual SPE Automotive Division / Automotive Composites Alliance golf outing was held on September 14, 2009 at the Fieldstone Golf Club, Auburn Hills, MI. Our effort was to tie the outing to the annual Automotive Composites Conference and Expo, which was held on September 15th & 16th at the MSU Management Education Center, Troy, MI. This year, 21 foursomes were greeted with perfect sunshine, temperature, course conditions, and industry-wide camaraderie.

Adding to the success of this year's event were our sponsors. SPE and ACA wish to thank:

- Lunch Sponsor - Detroit Test Labs
- Dinner Sponsor - Magna International
- Hole Contest Sponsors - Plasticolors, Plastic Engineering & Technical Services, AOC, & PolyOne

We also wish to congratulate the winners of the SPE/ACA golf outing tournament. They are:

- 1st Place: AOC
J Dahl, S Mohnke, M Siwajek, J Young
- 2nd Place: PET's
P Tooman, S hinderer, M Morris, P Kolton
- 3rd Place (tie):
Ashland - J Pierce, L Myers, M Shah, D Finnegan
PolyOne - R Bush, B Pertler, S Schneider, S Weber

SPE and ACA look forward to continuing this traditional event.

Society of Plastics Engineers
Automotive Division
1800 Crooks Road
Suite A
Troy, MI 48084 USA

Visit our website at www.speautomotive.com

Automotive Division Hotline

(248) 244.8993 or email info@speautomotive.com

Automotive Division Directory

Division Officers and Executive Committee

Maria Ciliberti, Chair
Ticona Engineering Polymers
(248) 377.6851

Jeff Helms, Chair-Elect
Ticona Engineering Polymers
(248) 377.6895

Anthony Gasbarro, Vice-Chair
Advanced Composites, Inc.
(248) 721.0276

Yvonne Bankowski, Treasurer
Ford Motor Company

Monica Prokopyshen, Secretary
Retired - Chrysler LLC
(248) 608.6259

Nippani Rao, Division Councilor
Retired - Chrysler LLC
(248) 444.1753

Tom Pickett, Past-Chair
General Motors Corporation
(586) 492.2454

Josh Madden, Director Emeritus
Material Engineering Services
(248) 505.2776

Dr. Allan Murray, Director Emeritus
Ecoplexus, Inc.
(248) 814.8072

Committee Chairs

Dr. Norm Kakarala, Technical Programs
2010 ANTEC
2010 AutoEPCON
Inteva Products
(248) 655.8483

Monica Prokopyshen, Education
Retired - Chrysler LLC
(248) 608.6259

Johanne Wilson, Membership
CIBA Corporation
(313) 282.1025

Maria Ciliberti, 2009 Awards Program
Ticona Engineering Polymers
(248) 377.6851

Fred Deans, 2010 Golf Outing
Allied Composite Technologies
(248) 760.7717

Jackie Rehkopf, Inter-Society
Exponent Inc.
(248) 324.9128

Bill Pippine, Social
(248) 459-8237

Peggy Malnati, Communications
Malnati and Associates
(248) 592.0765

Kevin Pageau, Newsletter Editor
Tegrant Corporation
(248) 835.4999

Teri Chouinard, Newsletter Sponsorship
Intuit Group, LLC
(810) 797.7242

Directors to May 2010

David Reed (734) 674.0736
Retired - General Motors

Mike Masserant (313) 323.9669
Ford Motor Company

Suzanne Cole (810) 750.3863
Cole & Associates

Ron Price (248) 563.6343
Global Polymer Solutions

Gus Chen (248) 377.6863
Ticona Engineering Polymers

Mike Whitens (313) 323.8157
Ford Motor Company

Directors to May 2011

Kevin Pageau (248) 835.4999
Tegrant Corporation

Jackie Rehkopf (248) 324.9128
Exponent Inc.

Dr. Suresh Shah (248) 655.8695
Delphi Corporation

Johanne Wilson (313) 282.1025
CIBA Corporation

Mark Lapain (248) 567.5455
Magna International

Dr. Norm Kakarala (248) 655.8483
Inteva Products

Directors to May 2012

Bonnie Bennyhoff (248) 350.6573
ExxonMobil

Peggy Malnati (248) 592.0765
Malnati and Associates

Fred Deans (248) 760.7717
Allied Composite Technologies

Jay Raisoni
Adell Plastics

Venkatakrish Umamaheswaran
Sabic Innovative Plastics

Ed Garnham (248) 379.1729