

Polymer Valley News

The Newsletter of the Akron Section of the Society of Plastics Engineers
Our 46th Year of Education and Service to the Plastics Industry

Newsletter Contents

Meeting Announcement	1
Meeting Schedule, Cost	1
President's Message	2
TPE TopCon 2005	2
Meeting Location Map	3
Student Chapter Note	3
Membership Report, 08/05	4
Programs for 2005/2006	5
Advertiser Index	6
Akron SPE Past Presidents	6
Speaker Biography	7
Minutes of 09/19 Board Mtg.	8
Student Chapter	10
Meeting Questionnaire	11
Akron Section Board Members	12
SPE International Contacts	12
Pictures from TopCon	13
EPS Division of TopCon	14
SPE Educational Foundation	15
Insertion Order form – 2005/06	16
SPE Membership Application	17
TopCon Paper	18

Costs, Schedules, Reservations

Member	\$15.00
Member and Guest	\$25.00
Retiree	\$10.00
Student	\$10.00
Registration	11:30 a.m.
Lunch	12:00 p.m.
Presentation	12:15 p.m.

Call Cathy Herrin before noon, Oct. 10 in order to receive above prices and specify any dietary restrictions. After Oct. 10, add \$5.00 to above prices.

(330) 849-5287 T; (330) 849-5594 F
cathy.herrin@santoprene.com

Coming Up:

Technical Meeting

October 17, 2005

11:30 a.m.

Tangier Restaurant

532 West Market Street
Akron, Ohio

JSW

Twin Screw New Technology
By Mike Millsaps, Sales & Marketing Manager
JSW technical center in Edinburg, Indiana

JSW is a global leader in the design, development and manufacture of twin-screw extruders, feeders and pelletizers. Whether it's color concentrates, wood flour, nanocomposites, alloying, reactive extrusion, devolatilizing or de-watering, JSW offers unsurpassed experience and technology for any application. Current twin screw sizes range from our newest 28mm laboratory extruder to the world's largest 443mm production twin-screw extruder.

The presentation provides attendees with an overview of JSW twin-screw extruder technology and capabilities in an effort to show what sets JSW apart from other twin-screw manufacturers. An explanation of JSW's reach & market share, both domestically and globally, is presented as well.

continued on page 4 ...

- Next meeting – November 21, 2005
- Board meeting – October 10, 2005, Akron Univ. Polymer Eng. Center

Oct., 2005, Page 1



President's Message

As we wind down from a very successful TOPCON on thermoplastic elastomers, we now look toward future programs and activities, both immediate and long term. In the former category are our continuing monthly Section meetings on technical topics, the next one on October 17 covering a topic of great interest to the polymer compounding industry - new advances in twin screw extrusion. It will be followed by an entirely different topic in November, electrospinning and application of nanofibers, a contribution from the academic community. And the remaining technical meetings through the end of spring will cover yet other diverse topics. The point I am wanting to make is that our SPE Section meetings have something for every member.

In the longer term, we look forward to growing our Section through a yet wider range of activities and programs. For example, we will be embarking on sponsorship of a new TOPCON subject in 2006 – plastics in lighting displays. We are also looking for some alternative social events to supplement our golf outings - activities that are just plain fun while allowing us to interact and network. And this coming December, we are for the first time having a joint holiday social program with the students in our Student Chapter at The University of Akron. It will be held in the new student center on the U Akron campus, and I hope that many of you will join the festivities and interact with the students.

With all of these exciting offerings, I hope to see you at one or more Section functions in the near future. Until then, best wishes

Lloyd Goettler
President, Akron Section

TPE TopCon 2005

The TPE TopCon 2005 was a huge success. The event was well attended with over 30 papers and 35 table top displays. Both luncheon programs had excellent speakers and the conference attendance was at 288! I have extracted one article from the event and it is included at the end of the newsletter (page 18). The author is Gary Lawrence and the topic covers a new, unique approach to improve cycle time when molding TPEs. I plan on extracting at least one article from this TOPCON in the coming months in this newsletter. Hope you enjoy the fresh technical details! Pictures from the event can also be found on page 13.



44408 State Route 14
P.O. Box 4
Columbiana, OH 44408

Contact us at 888.482.4686 or
sales@capcopolymers.com

- Prime
- Wide Spec
- Custom Recycling Program
- Next Day Delivery on In-stock Items
- "Your Complete Resin Source Since 1983"



Exactly your chemistry.

Bob Woody 800-437-8369

www.clariant.masterbatches.com



Map to Tangier Restaurant 532 West Market Street Akron, Ohio

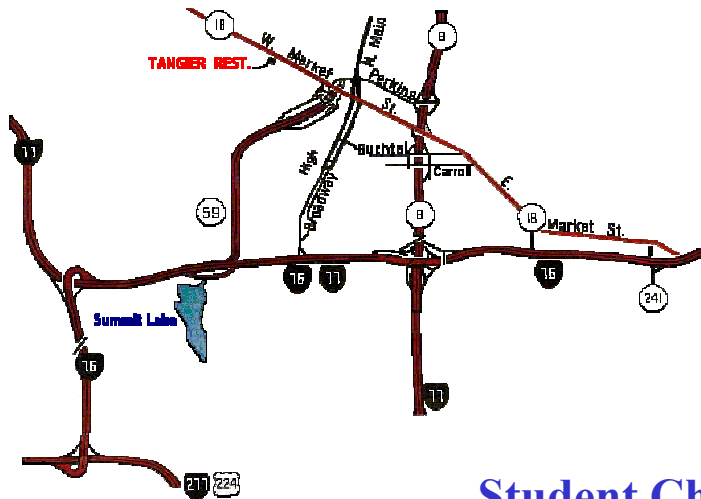
From North, Cleveland or Cleveland West - Route 71 South to Route 18 East (Market Street) to Tangier. Or Route 77 South to Ghent Road exit. Turn right onto Ghent Road. Proceed to W. Market Street (Route 18) and turn left to Tangier.

Cleveland East - Route 271 South to Route 8 South. Exit at Perkins Street. Turn right onto Perkins Street to High Street. Turn left onto High Street. Proceed to Market Street. Turn right onto Market Street.

From the South: Canton - Route 77 North to Perkins Street exit. Turn left onto Perkins Street. Proceed on Perkins Street to High Street. Turn left onto High Street. Proceed on High Street to Market Street. Turn right onto Market Street to Tangier.

From the East: Youngstown - Route 76 West to Broadway Street exit. Straight onto Broadway Street. (one way Street North) Proceed on Broadway Street to Market Street. Turn left onto Market Street to Tangier.

From the West - Route 76 East or Route 77 South to Route 59 North. Proceed on Route 59 to Market Street exit. Turn left onto Market Street. Proceed on Market Street to Tangier.



Student Chapter Note

Our student chapter is holding academically constructive activities while continuing to have entertaining events. A series of career building seminars will continue to be held this year. In these seminars, guest speakers from industry are invited to our department to tell students about their company and share their experience on the skills required while searching for jobs. These seminars are critical especially at this time as we are publishing a graduate student resume book. We are also planning to arrange more industrial trips for our graduate students. In particular we would really like to visit plant sites for tour of facilities and labs. Please contact the student chapter president Kaan Gunes (kg23@uakron.edu) if you would like to be a speaker in one of our career building fairs or if we could have a tour of your company. The student chapter will be participating in SPE technical meetings with as many members as possible and we look forward to meeting you soon.

Kaan Gunes, SPE Akron Section Student Chapter President



- Gravimetric & Volumetric Feeders
- Vacuum Loaders



- Dense & Dilute Phase Conveying Systems & Components



- Bulk Bag Systems
- Aero Mechanical Conveyors



- Single & Dual Rotor Mixers
- Ribbon Blenders



- Crushers
- Shredders
- Mills



- Rotary Air Locks
- Dust Collectors
- Components

www.davidindustrialsales.com

Richfield: (330) 659-3157 Perrysburg: (419) 874-1359

The Formula to Success on Internet

Content = Traffic = Leads = Sales

Good web site **Content** brings high-quality, high-volume **Traffic** that provides solid sales **Leads** and many opportunities for **Sales**.

For high-impact Internet marketing strategies, call (800) 326-8666 or (330) 665-5918.

www.polysort.com

*Internet Marketing Experts
for the Plastics and Rubber Industries*



Membership Report – August, 2005

Akron had 17 new members in August. This puts our total membership up to 405! See list for new members.

We also had 8 transfers in and 0 out.

Six members also renew in August, thank you.

Membership News from National

•I am doing a little bit of a breakdown of membership. It looks like most of our members either belong to a processing or a material behavior division. The two larger divisions are extrusion and then injection molding for our section. I will write a more detailed report that shows the breakdown amongst divisions and companies.

•National news, total membership is at 19,184. This number is 263 more members than one year ago.

•AIM is still running around a 20% conversion rate which is still much better than other methods. See the AIM web page for details, <http://www.4spe.org/communities/1d/aim.php>.

•Kudos to Owens Corning for adding three new members to our section!

Membership chair, Joe Pfeiffer,
Santoprene Specialty Products

New Members

New Members Welcome! All new members are invited to our next meeting free. Just show up with a copy of this printed article with your name on it and you get in free!

Say “hello and thanks for joining” if you know the following people.

Daniel P. Bertschi, Weatherchem Corp.
Ann Bolek, Librarian, University of Akron

Raymond M. Breindel, Owens Corning

Kaan Gunes, University of Akron

Steve Holler, Graco Children Products

Mark Holler, McCann Plastics, Inc.

Krishna Joshi, Multibase

Rishi Jumar, University of Akron

Shinji Masamura, University of Akron

John H. Nelson

Ed Nerlich, DSM Thermoplastics

Elastomers Inc.

Kerry Prince, Owens Corning

Joseph Russo, DLH Industires, Inc.

Allen S. Wass, Sanford Rose Associates

Dan M. Watson, Polyone Corp.

Mitchell Z. Weekely, Owens Corning

Francie K. Wright, Buckeye Color

JSW ... continued from page 1

Twin Screw New Technology

The presentation will include a brief explanation of the expired JSW/Davis-Standard licensee agreement resulting in the opening of the JSW technical center located in Edinburgh, Indiana. In addition, a special trial offer will be offered to all meeting attendees and/or their respective companies.

In an effort to make the presentation more than simply a JSW sales presentation, a portion of the presentation will discuss current trends and business outlook for the U.S. plastics market. A brief explanation of the current size and scope of U.S. twin-screw market over the last 5 to 6 years will be discussed as well.

In conclusion, the presenter will be open to questions from attendees.



Programs for 2005 / 2006

Sept. 12-14	Thermoplastic Elastomers TOPCON -- Hilton Fairlawn	Feb. 27	Diamond Plant Tour Dinner Meeting
Oct. 17	JSW "Twin Screw New Technology" Lunch Meeting -- Tangier	Mar. 27	Mini-Tech Joint Meeting with ORPG and Firelands Stabilization of Rubber, TPE and Plastics
Nov. 21	Prof. Renecker of Polymer Science Akron University, "Electrospinning and Applications of Nanofibers" Lunch Meeting		3 to 6 papers on UV and light stabilizers, A.O., color stabilization and process aids Afternoon Meeting
Dec.	Social event to be determined	Apr. 24	Master Precision Molding "MUDD" Dinner Meeting
Jan. 23	Polymer Exchange Plant Tour (Plastic Recycler) and Eriez "Plastic Separation and Process" Dinner Meeting	May 12	Spring Golf Outing Joint Meeting with Cleveland - Barberton Brookside
		May 22	Awards Banquet Dinner Meeting




Akron Polymer Training Center

Provides training classes for plastic and rubber processors taught by University of Akron faculty and industry professionals. Visit our website at www2.uakron.edu/aptc for a complete list of our current course offerings.

Customized Development and Delivery

The Akron Polymer Training Center also specializes in customized training developed specifically for your employees. Depending on your company's particular needs, our courses can be taught on site at your location, or at our state-of-the-art facility on the campus of The University of Akron.

Our programs are designed to enhance on-the-job effectiveness for all professionals working in the polymer field. If you are experiencing difficulty with polymer-related design or processing problems, contact us. Our reliable and dedicated staff will work with your team to develop a training strategy guaranteed to produce results. Contact Tayba Tahir by phone at **330.972.8661** or email Tayba at tahir@uakron.edu. If you don't see what you need, no problem! We have the resources to solve even the most vexing polymer processing and design issues.



Advertiser Index

Akron Polymer Training Center	5
American Polymers, Inc	11
Ashland	6
Capco Polymer Ind.	2
Chemir Analytical Services	12
Clariant	2
D-M-E	11
David Industrial Sales	3
Omya, Inc.	12
Polymer Processing & Testing Services	7
Polymer Resources	11
Polysort	3

ASHLAND.

Where you need it. When you need it.
What else do you need?

Ashland Distribution is the leader in the distribution of thermoplastic materials. One call or click to our website is all it takes to handle your material needs.

For more information contact us at
1-800-828-7659 or on the web
at www.ashdist.com



Ashland is committed to the continuous evolution of technology and service solutions that promote health, safety and environmental protection around the world.

© Registered Trademark, Ashland. © Copyright 2005, Ashland.

* Responsible Care is a registered service mark of the American Chemistry Council, the Canadian Chemical Producers' Association and of other entities in other countries.

Akron Section SPE Past Presidents

*45 years of
excellence*

1959-1960	Donald F. Siddall	1982-1983	James Steiner
1960-1961	Milan Krajcik	1983-1984	Robert G. Hills
1961-1962	Foster J. Young	1984-1985	Anthony F. Dean, Jr.
1962-1963	Dickson L. Stoker, III	1985-1986	Gene Buser
1963-1964	Edward L. Hillier	1986-1987	Harry J. Barth
1964-1965	John R. Russell	1987-1988	Judith A. Fallon
1965-1966	John R. Russell	1988-1989	William E. Tosco
1966-1967	Clyde H. Jones	1989-1990	Robert Wegelin
1967-1968	Alan Corry, Jr.	1990-1991	Geraldine R. Stromquist
1968-1969	Bernard M. Saffian	1991-1992	Spencer Keiser
1969-1970	Harold R. Schick	1992-1993	Robert Wegelin
1970-1971	Robert G. Hills	1993-1994	Tony Dean
1971-1972	John J. Satterfield	1994-1995	Wayne Decamp
1972-1973	Alexis M. Gross	1995-1996	Melanie Stewart
1973-1974	Francis J. Maurer	1996-1997	Kevin Hershfield
1974-1975	Leverett A. Anderson, Jr.	1997-1998	Dave Schultz
1975-1976	Robert M. Hershey	1998-1999	John Raab
1976-1977	Richard L. Fleshman	1999-2000	Gary Taylor
1977-1978	David Curtis	2000-2001	Kevin Malpass
1978-1979	John A. Zelek, Jr.	2001-2002	Ken Sharp
1979-1980	Gerald W. Whitnable	2002-2003	Joe Pfeiffer
1980-1981	Kathleen N. Bechter	2003-2004	Robert Wegelin
1981-1982	Victor E. Giuffrida	2004-2005	Joe Mattingly



Mr. Mike Millsaps, Biography of Speaker

Mike has been involved in the plastics industry for over 25 years. He started his career with Burton Rubber in Macedonia, Ohio in 1976 working summers while attending college. Burton Rubber changed its name to Mach 1 Plastics and was later purchased by M.A. Hannah, eventually becoming part of PolyOne. During his career at Mach 1, Mike gained valuable experience in many aspects of the compounding industry including production, QC and maintenance.

From there he became maintenance manager and was highly involved in the start-up operations at Laurel Industries Specialty Compounding in Sharon Center, Ohio. Laurel Industries was later purchased by A. Schulman. After leaving Schulman, he became a sales Engineer with Farrel Corporation, Ansoina, CT, working for several years in the Akron, Ohio office. Mike then spent three years as Sr. account manager for Conformal Clad Inc. in New Albany, Indiana where he was responsible for sales of wear and corrosive resistant barrels to the plastics market.

Mike is currently the Sales & Marketing Manager for JSW twin-screw extruders, responsible for all sales activities throughout the NAFTA region. Mike is based out of the JSW technical center in Edinburgh, Indiana.



The University of Akron

The University of Akron Institute of Polymer Engineering

Polymer Processing and Testing Services

Don't want to invest in expensive equipment at this time? Don't know what equipment is best? Only need the use of the equipment for a short period of time?

Perhaps the best answer to these questions is to contract our polymer processing and testing services.

UA's Institute of Polymer Engineering works with all types of clients in the polymer industry, large companies and small firms, well-established businesses and start-ups. Companies turn to the Institute for assistance because they do not have the capabilities (equipment or personnel) to conduct their own research and testing.

The Institute of Polymer Engineering has a wide variety of specialized equipment needed for polymer processing, characterization, analysis and testing. Some of that equipment is listed here below.

To further discuss your needs, please contact Dr Lloyd Goettler at (330) 972-7467 lagoett@uakron.edu or Cameron Fraser at (330) 972-6008 cfraser@uakron.edu

Analysis and Testing

- x-ray
- scanning electron microscopy
- atomic force microscopy
- optical microscopy
- laser microscopy
- TGA
- DSC
- FT-IR
- DMA
- APA
- stress strain testing
- rheology
- biaxial stretching

Polymer Processing

- single-screw extruding
- twin-screw extruding
- film casting
- film blowing
- fiber spinning
- injection molding
- compression molding
- vacuum molding
- blow molding
- compounding

Sample Preparation

- microtoming
- vacuum drying
- sputter coating
- particle size reducing



Minutes of Board Meeting – September 19, 2005

Call to Order: 5:30 p.m. Akron University Polymer Engineering Center.

Present: Lloyd Goettler, Cameron Fraser, Hemant Thakkar, Josh Wong, Tony Dean , Kaan Gunes, Rishi Kumar, Dave Schultz, Joe Pfeiffer, Gary Taylor, Dave Katz, Sadhan Jana

Absent - John Woodside, Amruth Puttarudraiah, Kevin Malpass, Vivian Malpass, Joe Mattingly, Bob Wegelin

Note: OLD Business now has past Action Items

Minutes: August minutes were approved.

Treasurer: Gary reports that he has closed the year 2004-05 and that we would have been in balance if we would have had the National Rebate. He also reports that we did not place monies in Education Foundation. We have a positive balance ending 2004-05.

Officers, 2005: Nothing noted.

Awards 2005 Update: Cameron reports that he will handle supporting data and that Vivian Malpass will nominate Tony Dean for Honored Service Member. Cameron plans to have all paper support complete by end of Sept. for Oct 30 deadline. The Board has decided to pursue the Star Award rather than the Pinnacle for 2005-06 year- John Woodside to handle details.

Student Chapter: Kaan Gunes is the new president of PESO (Student Chapter). He announced there will be collaboration this year with Polymer Science Organization in some of the events. Plan to have Fall Carnival (date to be announced), Job Fair, Request sites for Tour- Facility and Lab. The Xmas Party set for December 15, 2005.

Newsletter: Joe Pfeiffer requests :(1) All to supply Joe Pfeiffer with newsletter items by Sept. 26-27. (2) Joe to contact TPE TOPCON 2005 authors for short Technical article.

Membership: Joe reports that we have 405 members and 17 new members for Aug. Joe will welcome all in newsletter and invite as our Guests to October Meeting- Lunch.

Councilor's Report: Vivian will be going to the Councilor's Meeting in Milwaukee, WI on September 24. ANTEC 2006 is in Charlotte, NC. **Action Item:** Vivian to attend Councilor's Meeting.

TPE TOPCON 2005: Joe reported for Viv that there were 288 registrants and 34 Exhibitors. The papers were quite good and well attended. More details to follow. It appears that the 2007 TPE TOPCON might be held in Akron.

Education Committee: Scholarship information out. Action Item: Kevin plans to meet with Hemant and Kathy Education Foundation details.

Education Foundation: No report. Need to confirm Omnova's contribution for future. The goal this year is to get five new companies to donate at least \$2,000 a year. Suggested to contact Bridgestone / Firestone Charities since they will now host World Series of Golf for 2006 for Donation to Education Foundation.



Minutes of Board Meeting – September 19, 2005 (cont.)

Website: Tony Dean reported that website is up to date. Tony to discuss cost increase with Polysort.

Advertising: We currently have about 8-10 ads running; more are needed. Action Item: Joe Mattingly to send rate page to BOD members. Joe to invoice those that have agreed to advertise.

Auction: Nothing to report.

Program: Nothing to report.

House: Martin Center prices have gone up. Dave Katz has details from Guys and Tangiers. No discount at Martin Center. David to work with Joe M and set up location for Oct 17 Meeting

Fall Golf: Nothing to report.

Spring Golf: Bob reported that the Spring Golf Outing will be May 12, 2006 at Barberton Brookside Country Club.

Past President's Committee: Joe will get together with Bob Wegelin regarding plans for committee.

ACCESS: Lloyd will attend the next ACCESS on Sept 22 to discuss a Plastics Program and Equipment from East HS to be potentially used for another Akron City School- Ellet ,Garfield or Firestone with Dan Jones and Brent Sisler. ACCESS has asked for donation to the Awards and Scholarship Program. Akron Section Board voted and approved a donation.

Old Business: Nothing to report.

New Business: Program (Lloyd Goettler for John Woodside): Lloyd passed out 2004/2005 program. Comments were:

- Our social event for December will include the Student Chapter. It will be held on Friday, December 15, 2005.
- The March 27, 2006 meeting is not set. The Pittsburg SPE Section may join the meeting. Tom Worcester of Process Controls also wants to present at the meeting. He will talk about feeding additives into a process which will be a good fit. Need to determine if Ohio Rubber and Plastics Group is also a possibility. Action Item: Lloyd or John to make calls to confirm.

New TOPCON: The EPS Division has confirmed the Akron Section as a co-host of a TOPCON on Display Technology scheduled for October 23-24 at Univ.of Akron Student Center. The EPS Division led by Sadhan Jana, Josh Wong and Cameron Fraser will realize 20% of the proceeds, without liability, depending on the level of duties and responsibilities assigned. EPS Div. under Josh Wong now needs our help in Logistics- Hotel, Meals, etc. Sponsorship- Exhibits and Publicity- Brochures, plus help from Student Chapter. Confirmed that EPS Div. Natl will handle the Technical Program. Action Step : Josh Wong will contact others in Akron Section for help in Logistics to work with Cameron and Sadhan Jana. The areas include Sponsors and Exhibits- plan to contact Kevin Malpass re TPE TOPCON work and Publicity- plan to contact Bill Greenstreet for Brochure. Kaan has agreed to have Student Chapter involved.



Minutes of Board Meeting – September 19, 2005 (cont.)

Section Central Ohio: Lloyd reports that a student alumni from Univ. of Akron who works for Honda is trying to revive the Section. Akron Section has agreed to help by supplying speaker contacts and possibly have Board and Section Members attend their meeting, place information in the newsletter, etc.

Directors and Officers Insurance: Cameron Fraser plans to re-review for Board for 2005-06 year.

The next board meeting will be October 10, 2005 at the Akron Univ. Polymer Engineering Center.



7095 Industrial Rd., PO Box 6270 (41022-6270)
Florence, KY 41042 · www.berstorff.com
859-283-0200 · Fax 859-283-1860 · Info@berstorff.com
Compounding, Pelletizing & Calenderizing Equipment

SPE Student Chapter

SPE Student Chapter at the University of Akron held elections in August and the new committee is now in office. The new executive officers are Kaan Gunes (president), Rishi Kumar (vice president), Soojeoung Park (Treasurer) and Todd Lewis (Secretary). As the new committee, we are putting equal emphasis on both entertaining and educational activities.

Our leisurely activities started with the Welcome Picnic held on August 25th in the Monroe Falls Metro Park. This semester we will be holding activities including paintball, bowling night, fall carnival and Christmas party.

Our planned educational activities include career building seminars, plant trips and student seminars. For the career building seminar series, we welcome sponsorships and speakers from industry. We are planning to print a brochure of our department describing our facilities, faculty, current research and graduating students. We will be sending these brochures to industry aiming to increase sponsorship opportunities for activities and conferences as well as the number of jobs offered to graduating students. Our student chapter also funds students for conferences, and we need your suggestions and help to improve the interaction of students with industry. We would like to join SPE section meetings, especially plant tours. We are also planning to arrange more industrial trips for students, for which any contributions from SPE will be highly appreciated.

We are looking forward to interacting more with SPE Akron Section this year and would like to contribute to your activities whenever you need our help.

Kaan Gunes



Akron SPE Section Meeting Questionnaire

1. What type of meetings would you like to attend (technical, tours, entertainment, special events [auctions, awards], etc.)? Or do you just prefer a mix as we presently do?
2. Our meeting frequency is monthly from October through May. Do you feel this frequency is good and, if not, how often should we meet? Also our meetings have been every 4th Monday evening of the month. Would a different day increase attendance?
3. Do you have a preferred location and, if so, where would that be? Or do you prefer a variety of venues?
4. Is the time after work from 5:30 to 8:00 p.m. convenient, or would you prefer having more luncheon meetings?
5. Any other comments on how we can increase attendance and make our meeting more attended?

Send responses back to jepfeiffer@santoprene.com. Thank you for your thoughts and ideas.



**For six decades,
the mold tooling advantage.**

- Hot Runner Systems
- Mold Bases
- Machining Services
- Mold Components
- Electronic Controls
- Moldmaking Supplies
- Applications Engineering
- Service & Support

Every D-M-E product comes with your satisfaction 100% guaranteed.



800-626-6653 • www.dme.net



**Producer
and Major
Supplier of
Quality
Thermoplastic
Resins**

- Polystyrene Producer
- Custom Compounded Resins
- Color Concentrates
- Blending and Grinding
- In-house Laboratory Testing
- Material Handling Systems
- ABS
- Acrylic
- Nylon
- Polycarbonate
- Polyethylene
- Polypropylene
- Polystyrene
- SAN

Our distribution and warehousing network system assures you on-time delivery:



**American
POLYMERS, INC.**

Bill Ferrell (440) 358-0842
Scott Riegger (330) 785-1300
Sales Representatives

11 Buffum Dam Road • Oxford, MA 01540
Tel (508) 967-8565 • Fax (508) 967-8292

www.americanpolymers.com



POLYMER RESOURCES LTD.

The Leader in Classic Engineering Plastic Compounds

- PRL PC – Polycarbonate
- PRL PPX – Modified PPO/PPE
- PRL TP – PBT Polyester
- PRL ABS – ABS
- PRL PC/TP – PC Polyesters
- PRL PC/ABS – PC/ABS Blends
- PRL PEI – Polyetherimide
- PRL NY – Polyamide

ROBERT SPANO

OFFICE: 330-633-9699 E-MAIL: rspano@PolymerResources.com

FAX: 330-633-9288

CUSTOMER SERVICE: 800-243-5176

www.PolymerResources.com



Akron Section Board of Directors

Lloyd Goettler 330-972-7467 T
U Akron Polymer Engineering 330-258-2339 F
President / Program Chair lagoett@uakron.edu

John Woodside 216-533-1324 T
Everlight USA, Inc. 216-741-6883 F
Pres-Elect/Prog. Chair johnwoodside@ameritech.net

Gary Taylor 330-336-6621 T
Myers Wadsworth 330-334-7100 F
Treasurer gtaylor@po.akro-mils.com

Dave Schultz 330-798-6535 T
Harwick Standard Dist. Corp. 330-798-9328 F
Secretary schultzd@harwickstandard.com

Joe Mattingly 330-929-4213 x1274 T
Americhem 330-929-4144 F
Past-President/Ads jmattingly@americhem.com

Bob Wegelin 330-849-5179 T
AES - Prior Past-President / 330-849-5589 F
Spring Golf robert.wegelin@santoprene.com

Joe Pfeiffer 330-849-5097 T
AES 330-849-5589 F
Membership/Newsletter Ed. jepfeiffer@santoprene.com

Kevin Malpass 330-666-5226 T
GE Plastics Americas 330-666-5223 F
Education Foundation kevin.malpass@ge.com

Hemant Thakkar 330-794-6600 T
ARDL 330-794-6610 F
Ed. Committee Hemant.Thakkar@ardl.com

Tony Dean 330-929-9916 T
Retired-Webmaster/Public Interest francis@neo.rr.com

Vivian Malpass 330-342-1120 T
Tek-Mark International 330-342-1134 F
Councilor tekmark@worldnet.att.net

Dave Katz 330-849-5139 T
AES 330-849-5586 F
House david.katz@santoprene.com

Kathy Perevosnik 330-849-5119 T
AES 330-849-5597 F
Education Committee kaperevosnik@santoprene.com

Cameron Fraser 330-972-6008 T
U Akron Polymer Engineering 330-258-2339 F
Awards Night cfraser@uakron.edu

Amruth Puttarudraiah 330-972-5834 T
A. Schulman 330-258-2339 F
Director amrutheswar_puttarudraiah@schulman.com

Josh Wong 330-972-8275 T
U Akron Polymer Engineering 330-972-6027 F
Director swong@uakron.edu

Kaan Gunes 240-643-0184 T
U Akron Polymer Engineering 330-239-2998 F
Student Chapter President kalkanz@uakron.edu

Sadhan Jana 330-972-8293 T
U Akron Polymer Engineering 330-258-2339 F
Student Chapter Advisor janas@uakron.edu

Contacts at SPE INTERNATIONAL

14 Fairfield Drive
Brookfield, CT 06804-0403
Phone: 203-775-0471 • Fax 203-775-8490
Web: www.4spe.org

all phones in area 203 - all e-mail @4spe.org

NAME / Function	e-mail / phone
Susan Oderwald Deputy Executive Director	seoderwald 740-5471
Marie Salzo Executive Assistant	mcsalzo 740-5422
Deborah Daily E-Services Manager	dadaily 740-5468
Nancy Herdegen Training Products Manager	nbherdegen 740-5440
Laurie McDougal Training and Education Coord.	lamcdougal 740-5432
Clive Bullard Advertising Sales	cbullard 740-5427
Tobi Gebauer Manager, Member Recruitment/Retention	tgebauer 740-5457
Tricia McKnight Liaison, Leadership Serv.-Section Admn.	tmcknight 740-5430
Lesley Kyle Senior Event Manager	lskyle 740-5452
Gail R. Bristol Managing Director, Foundation	grbristol 740-5447

Polymer Analysis Services

Polymer, Filler and Additives

- Complete Deformulation
- Identification and Quantitation
- Competitive Product Analysis
- Product Failure / Defects

ISO 9001
Certified



C H E M I R

Analytical Services

2672 Metro Blvd., Maryland Heights, MO 63043

chemir.com



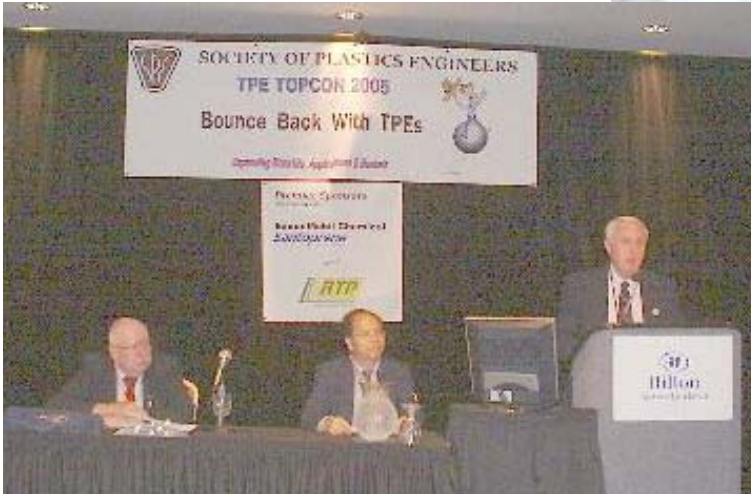
Omya Inc.

**Supplier of Reliable, High
Quality Calcium Carbonate
to the Plastics Industry**

**100 North Point Center East
Suite 310
Alpharetta, GA 30022
Tel (800) 749-6692
Fax (678) 393-3006
Email: pnpsales@omya.com
www.omya-na.com**



TopCon – 2005



August 18, 2005

Josh Wong
Sadhan Jana
Lloyd Goettler

Subject: EPS Division of SPE TOPCON in October 2006

The decisions on venue and date have been decided as The University of Akron campus October 23 and 24, 2006.

Attached is a rough draft of a P/L statement for the event based on experience with other conferences, and input gathered from the 8/12/05 conference telecon. Worst case scenario is 30 paying attendees and best case scenario is 120 paying attendees. Expected paying attendance is between 60 and 90. These and other variables can be changed in this Excel worksheet.

Income ... We have used the nominated registration fees, and rather arbitrarily split the attendees into segments (SPE members with advanced registration is 40%, for example). Hopefully we can find corporate sponsors for the four conference breaks.

Expenses ... We have reserved The University of Akron student center Ballroom A. This room will be arranged for classroom seating, and will seat up to 285 people. We would opt for a reduced number of tables and chairs, but add room for posters. The cost of this facility is \$600 per day, which includes audio/visual equipment. Morning and afternoon breaks are very moderately priced. A wide variety of lunch venues are available in the student union, and are currently planned to be at the expense of the conference attendees. We have however included a stand-up finger-food and beverages (including beer and wine) social event with poster session at \$30 per person.

Net profit for the event is significantly dependent on the number of paying attendees. It should be noted that there is minimal liability should the TOPCON be cancelled. The only foreseen liability is the printing and mailing of brochures, printing of signs, gifts for plenary and invited speakers, and CDs with conference proceedings. The exposure is therefore \$4400 maximum.

The most troublesome aspect of this TOPCON to me is the distance of a half-mile from the hotels to The University of Akron student union. The second-half of October in Akron can be rather "iffy". An alternative is to provide bus transportation each morning and evening. This however is an additional expense.

The proposed split of the proceeds is 40% to EPSDIV, 40% to SPE executive office, and 20% to SPE Akron section.

EPSDIV will be responsible for the technical content, publicity, gifts for plenary and invited speakers, and obtaining sponsorships for the four conference breaks.

SPE executive office will be responsible for advance and on-site registration, name tags and lanyards, and publicity.

SPE Akron section will be responsible for brochures, mementos, CDs with conference proceedings, and local logistics including meeting rooms, audio/visual equipment, signs and easels, poster boards, conference breaks, and Monday evening's social event.



Akron Section Society of Plastics Engineers, Inc.

The Akron Society of Plastics Engineers Educational Foundation operates exclusively for the benefit of and to carry out the purposes of the Akron Section of the Society of Plastics Engineers, Inc., which is to promote scientific and engineering knowledge relating to plastics by making educational scholarship grants to deserving students in the field of plastics engineering and related subjects. The Organization is supported primarily by contributions from the Akron Society of Plastics Engineers, the Society's individual members and corporations like yours affiliated with the polymer industry.

Since the inception in 1988, the Akron Society of Plastics Engineers Educational Foundation has grown to its current position through the hard work of many volunteers and the generosity of the local business community. Over the twelve years that the foundation has been in existence, it has provided scholarships to over 200 young men and women, totaling in excess of \$100,000 to assist them in furthering their careers in the polymer industry.

Our goal is to continue to grow the assets of the Foundation in order to increase the number of scholarships awarded as well as the size of the awards, and to do so in perpetuity. In doing this, we hope to be able to contribute to the supply of well-trained individuals to support the growth of the polymer industry in the Northeast Ohio area today and well into the future.

When the Foundation began its fund raising activities in 1988, we offered those companies who contributed \$30,000 a scholarship in their name. To date we have two named scholarships -- ***Newell/Rubbermaid*** and ***Goodyear***. We are asking your company to help with the growth of well-trained individuals in the local polymer industry. Please check below:

\$30,000 lump sum \$10,000 / yr next 3 yrs. \$5,000 / yr next 6 yrs.
 other _____

Our named scholarship donors are recognized at the annual Awards Night of the Akron Society of Plastics Engineers. We invite you to present your donation at our Awards Night, which will be scheduled in May.

I am looking forward to your support of this very worthwhile cause by your fine company. Please contact me at 216-573-7467 or e-mail at kevin.malpass@gepolymerland.com with any questions. Thank you for your consideration.

Sincerely,
Kevin Malpass, Chairman
Akron Section Society of Plastics Engineers, Education Foundation



Akron Section Society of Plastics Engineers

Joe Mattingly, Advertising Manager
330-929-4213, ext. 274

Insertion Order 2005-06

Polymer Valley News: Akron Section SPE Newsletter
Delivered via email, stored at <http://www.akronspe.org/newsletter.htm>

Please check ad size wanted. One column is 3-7/8" wide.

Rates are for entire season, September 2005 – Summer 2006. **Payable in Advance.**
Please let me know if you need an invoice.

Ad format must be electronic (but we can scan your original artwork). File size should be limited based on the size of the ad ordered. Oversized ads will be charged an additional fee. Acceptable formats are .bmp, .pcx, .jpg, .tif, .gif, or MS PowerPoint or Word (if you have any issues with format, please email us and we can provide assistance). **Color is Free! Color helps your ad stand out!**

Email artwork and this Insertion Order (completed) as an attachment to jmattingly@americhem.com

If you don't include your email address, we have no way of sending you each issue!

(please X)	Ad Size	Dimensions	Price for year
	Business Card	One column by 2" high	\$200
	Double	One column, 2 to 4" high	\$300
	Triple	One column, 4 to 6" high	\$400
	Half Page	One column, 10" high	\$500
	Half Page	Page width (7.5"), 5" high	\$500
	Hotlink to company website	N/A	\$75 / year

The cost on a per issue basis will be calculated by dividing the "Year" price by 10

Contact Person

Billing Information:

Company:

Name:

Address:

Phone #:

Fax #:

Email address:

Mail checks, payable to AKRON SECTION SPE, to:

Akron Section SPE
c/o Joe Mattingly
Americhem Inc
225 Broadway Street East
Cuyahoga Falls, OH 44221



Society of Plastics Engineers

PO Box 403, Brookfield, CT 06804-0403 USA
Telephone: +1.203.740.5403 Fax: +1.203.775.8490
www.4spe.org

MEMBERSHIP APPLICATION

Applicant Information

Name:

 first last mi

Applicant Type:
 Member
 Student (must supply graduation date _____)

Job Title:

Company Name and Business Address (or College):
 company/college:

 address:

 address:

 city: state:

 zip: country:

Work Phone: () _____ **Fax:** () _____

Home Phone: () _____

Email: *used for society business only*

Home Address: *(please provide)*
 address:

 address:

 city: state:

 zip: country:

Preferred Mailing Address:
 Home Business

Job Function:
(choose only one)
 Consulting (11)
 Design (02)
 Education (08)
 General Management
 Library (10)
 Manufacturing (04)
 Marketing (07)
 Purchasing (06)
 Quality Control (05)
 R & D (03)
 Retired (98)
 Student (09)
 Tech Support (12)
 Other (99)

Gender:
 Male Female

Birth Date: (mm/dd/yyyy)

The SPE Online Membership Directory is included with membership. Your information will automatically be included.
 Exclude my email from Online Member Directory
 Exclude all my information from Online Member Directory
 Exclude my address from all 3rd party mailings

Payment Information

New Member 1 Year	New Member 2 Years *	Student Member
<input type="checkbox"/> US (\$117.00)	<input type="checkbox"/> US (\$202.00)	<input type="checkbox"/> US (\$26.00)
<input type="checkbox"/> Canada (\$175.50)	<input type="checkbox"/> Canada (\$303.00)	<input type="checkbox"/> Canada (\$39.00)
<input type="checkbox"/> Euro (€143.00)	<input type="checkbox"/> Euro (€249.00)	<input type="checkbox"/> Euro (€27.00)

My Primary Division is (Division names are below) _____

Additional Divisions are available for a fee. Check below to select Additional Divisions.

<input type="checkbox"/> Automotive (D31)	<input type="checkbox"/> Mold Making & Mold Design (D35)
<input type="checkbox"/> Blow Molding (D30)	<input type="checkbox"/> Plastics Environmental (D40)
<input type="checkbox"/> Color & Appearance (D21)	<input type="checkbox"/> Polymer Analysis (D33)
<input type="checkbox"/> Composites (D39)	<input type="checkbox"/> Polymer Modifiers & Additives (D38)
<input type="checkbox"/> Decorating & Assembly (D34)	<input type="checkbox"/> Product Design & Development (D41)
<input type="checkbox"/> Electrical & Electronic (D24)	<input type="checkbox"/> Rotational Molding (D42)
<input type="checkbox"/> Engineering Properties & Structure (D26)	<input type="checkbox"/> Thermoforming (D25)
<input type="checkbox"/> Extrusion (D22)	<input type="checkbox"/> Thermoforming, European (D43)
<input type="checkbox"/> Injection Molding (D23)	<input type="checkbox"/> Thermoplastic Materials & Foams (D29)
<input type="checkbox"/> Marketing & Management (D37)	<input type="checkbox"/> Thermoset (D28)
<input type="checkbox"/> Medical Plastics (D36)	<input type="checkbox"/> Vinyl Plastics (D27)

Membership Amount _____

Primary Division **FREE**

Additional Division(s) _____
 cost for each Additional Division

	1 year	2 years
US	\$6.00	\$12.00
Canada	\$9.00	\$18.00
Euros	€6.00	€12.00

TOTAL _____

CHECK VISA AMEX MASTERCARD

card number

PAYMENT MUST ACCOMPANY APPLICATION
Sorry, No Purchase Orders Accepted

expiration date (mm/yyyy) _____

Checks must be drawn on US or Canadian banks in US or Canadian funds.

Dues include a 1-year subscription to *Plastics Engineering* magazine.
SPE membership is valid for twelve months from the month your application is processed.
*save over 10%

By signing below I agree to be governed by the Constitution and Bylaws of the Society and to promote the objectives of the Society. I certify that the 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 _____

recommended by member (optional) _____ Id # _____

New TPV for Improved Injection Molding Productivity

Gary Lawrence – Advanced Elastomer Systems

Abstract

Advanced Elastomer Systems has introduced new families of Thermoplastic Vulcanizates (TPV) that demonstrate improved injection molding productivity for both specialized and general-purpose applications. This paper will discuss the key thermodynamic factors producing the increased productivity and the subsequent key material performance results derived from this new technology and its economics.

Two issues have always affected the injection molding of TPEs - appearance and productivity. Over the long history of the injection molding process these have both been addressed, but much of the effort has been toward improving appearance rather than productivity. Productivity is simply more good parts per unit of time. There have always been incremental improvements in productivity, such as improving yield (reducing defects), automatic cycles vs. manual cycle, in mold de-gating, in mold decorating, etc. The portion of the injection molding cycle with the most opportunity for improvement has been mostly ignored - part cooling. The cooling process consumes anywhere from 30% to 80% of the total cycle time depending upon part thickness and tooling complexity.

There have been developments in improved mold cooling, use of special, highly conductive metals, conformal cooling, and FEA cooling analysis to optimize cooling channel location, to mention a few. Although these have achieved success in some niche applications for problem parts/tools they usually aren't sufficiently cost

effective for the average run of the mill part/mold design. All of these techniques run into the same thermodynamic barrier-the material. Once you add heat to a material, you have to remove it from the part again. This heat transfer is controlled by the material's basic thermal characteristics. Changing a material's thermal characteristics creates a large opportunity for productivity improvement.

Given the same cooling load, there are three ways to improve the cooling process:

1. Initiate solidification at a higher temperature
2. Decrease the amount of heat transference required to solidify the part
3. Change the rate of heat transfer through the plastic material to the mold surface.

For a typical EP Rubber/Polyolefin TPE/TPV this re-solidification process can be termed recrystallization, and is controlled by the temperature that the plastic phase begins to change from an amorphous molecular structure into a semi-crystalline molecular structure. That transition temperature is dependant upon the type of polyolefin, and its molecular weight. If the amount of heat that must be removed from a polymer system were similar, initiating recrystallization at a higher temperature would also result in completing solidification at a higher temperature, i.e. sooner. For example if the 'start' temperature were increased 10 degrees, the ending temperature would also move up about 10 degrees. Therefore, the part could be ejected as soon as the new ending temperature was reached; thus saving the time needed to reach the previous ending temperature. These transitions can be visualized

by looking at a DSC heating and cooling curve (Figs 1 & 2).

During heating a finite amount of thermal energy is added to the system to cause melting. This occurs over a finite unit of time. During cooling, the reverse occurs. It requires a finite amount of time to remove the heat from the system at the moment of crystallization to make the system solidify. During this energy removal and change in molecular structure, no cooling is taking place. This reordering is reflected by the size of the cooling peak. If this peak were to be smaller, less heat has to be removed, and the whole solidification process is quicker.

Changing the rate of heat transfer through the plastic material means changing the specific heat of the molten polymer. Plastic materials are very good insulators and it is difficult to find additives that make a significant change in this property from small inclusion quantities.

Although all three factors may be at work in improving the cooling of a TPV, the largest effect is usually seen from the first action, *initiating solidification (crystallization) at a higher temperature*. Advanced Elastomer Systems has used innovative and proprietary technology to reduce the overall cooling process. The result is a reduction in injection molding cycle times between 10% to >25% depending upon the composition of the plastic phase and the concentration of that phase as a portion of the overall TPV system.

The first grade to utilize this new technology is Santoprene™ TPV X121-75 M500. This is a high flow, UV stabilized, 75 shore A, black compound, similar in performance to the standard commercial product Santoprene™ TPV 121-75 M100. Table 1 shows the effect of this technology on the physical properties of

121-75 M500 as compared to 121-75 M100. All of the physical properties, including after heat aging, are nearly identical. The viscosities too are alike. The only indication of this change is in the recrystallization temperature (T_c), which increases from 107.0 °C for the 121-75 M100 to 122.1 °C for the 121-75 M500 (Fig 3). Laboratory trials have shown this change in the thermal properties to produce a decrease in molding cycle times of 15% to 25% for 121-75 M500, depending upon part design, tool design and press parameters.

To compare the value of these projected productivity improvements, an economic analysis was generated using the Advanced Elastomer Systems standard cost modeler. The following assumptions are used in the analysis:

1. Part thickness – 3mm
2. Part mass – 8 grams
3. Original cycle time – 20 seconds - using Santoprene 121-75 M100, a projected cycle improvement of 15%
4. Eight cavity injection mold
5. Production volume – 3,000,000 per year
6. Material price - \$ 5.29 (USD)/kg (\$ 2.41/lb)
7. Molding machine utilization – 98%
8. Additional cost of X121-75 M500 over 121-75 M100 – +5%

Initial part cost = \$ 0.1004/part

Final part cost = \$ 0.0859/part

Estimated annual cost saving on 3 million parts = \$43,500

Machine time reduction from 2100 to 1600 hours

Conclusions:

In summary, this technology can benefit many applications in diverse market segments and especially for thermoset rubber (TSR) substitution. It will allow further penetration into the TSR market segment where it has been traditionally difficult to replace TSR with a TPV due to material economics. This technology also increases the business scope for plastic molders. Injection molding cycle time is a fundamental contributor to product cost. Increased machine rates leads to higher overall efficiency and therefore reduced piece part costs. Significant

production time reduction frees up machine time to generate further profit by using other tooling in the same molding machine.

Table 1-Thermal & Physical Properties

	T _c °C (1)	UTS (2)	EO B (2)	Modulus @ 100% (2)	Hardness (3)	Viscosity ⁽⁴⁾ @ 1200 (1/sec)
Santoprene™ TPV 121-75 M100	107.0	6.6 MPa (963 psi)	441 %	3.6 MPa (521 psi)	76 Sh A	51 (Pa*sec)
Santoprene™ TPV X121-75 M500	122.1	6.5 MPa (947 psi)	426 %	3.7 MPa (535 psi)	76 Sh A	49 (Pa*sec)

Change in Properties after Heat Ageing 168 hrs. @ 100 °C⁽⁵⁾

	UTS (2)	EO B (2)	Modulus @ 100% (2)	Shore A Hardness (3)
Santoprene™ TPV 121-75 M100	-2%	- 14%	12%	2
Santoprene™ TPV X121-75 M500	0%	- 10%	10%	2

(1) 2nd Recrystallization Temperature by DSC Rheometer (4) LCR=Kayeness Linear Capillary

(2) Test method derived from ISO 37 188

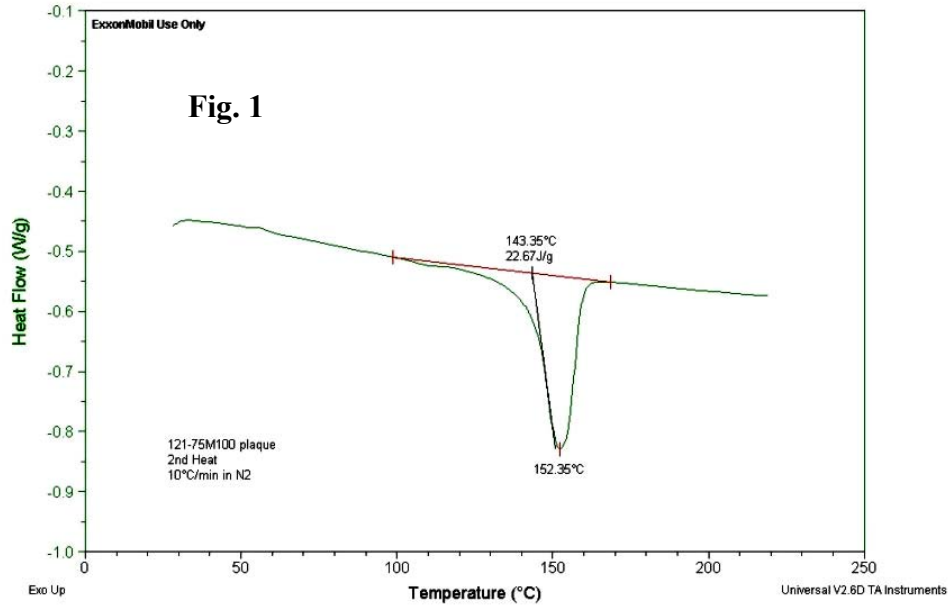
(3) Test method derived from ISO 868

(5) Test method derived from ISO

Sample: 121-75M100 plaque
Size: 7.6000 mg
Method: Tm and Tc
Comment: 25->230C/Tm, Tc (10C/min)/N2/G.Lawrence/03-0292

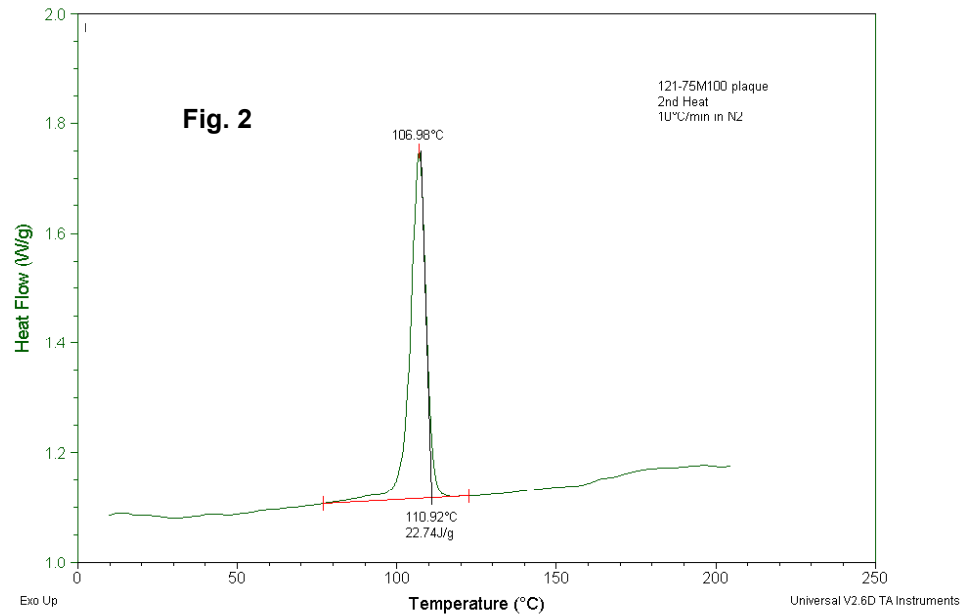
DSC

File: K:\...AES mat\121-75M100
Operator: Sherri Hart
Run Date: 2-Apr-03 16:16



Sample: 121-75M100 plaque
Size: 7.6000 mg
Method: Tm and Tc
Comment: 25->230C/Tm, Tc (10C/min)/N2/G.Lawrence/03-0292

DSC



Sample: x121-75M500
Size: 7.3000 mg
Method: Tm and Tc
Comment: 25-250C/N2/Tm, Tc(10C/min)

DSC

