



SPEC *Sheet*

SOCIETY OF PLASTICS ENGINEERS – CLEVELAND SECTION

March 2014 Vol. 57 No. 7

www.specleveland.org

Editor: [Bruce Bille](#)

March Meeting at Case Western Reserve University Topic: Continuous Compounding TOPCON (CCT) Tour of CWRU's Center for Advanced Polymer Processing (CAPP)

Prof. Joao Maia

Tuesday, March 11, 2014

Case Western Reserve University, Thwing Center - Second Floor
10900 Euclid Avenue, Cleveland, Ohio 44106

Agenda:

- 5:30 Social Networking
6:30 Reception at the Jolly Scholar Lounge
Technical presentation will be given during reception
Visit CCT sponsors' tabletop displays
Tours of CAPP will follow

Price: FREE to members guests, retirees.
But you must pre-register.
Reservations must be in by noon on Friday, Mar. 7 with
Dan Crist at mail@cmd-tip.com or 440-227-5424.

Quick Clicks:

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[TOPCON Registration](#)
[SPEC Survey](#)
[Cleveland Section Status](#)
[SPE-Cleveland Website](#)

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President's Message

By Gary Casterline



Hello everyone!

I have decided to predict Spring will arrive just in time for the TOPCON we are holding in Cleveland March 11-13. I may not be as famous as one of those rodents that has a reputation for this prediction, but I do see birds returning that usually show up when Spring is on its way. Surely they cannot be wrong since it may be a matter of life and death with them.

Speaking of which, I have learned a very sad thing in the last couple weeks. The grape vines used by wineries from here to at least Buffalo have suffered 100% bud kill on their vines as a result of the brutally cold winter we have had. Sure they can buy their grapes from other parts of the country, but so many of these people are basically farmers and expect their hard work growing grapes will keep down the price of making wine. Since I am a frequent visitor to these establishments, I have empathy for their plight.

Just like all of us in plastics in this region, we have suffered from some downside in how we thought our future would turn out, but we have persevered just like these wineries will. They can take some time to make other preparations for their future since there won't be grapes to harvest. Maybe you could take some time out to attend this TOPCON and it will help you prepare better for the future. You won't even have to worry about getting your flight cancelled to come to this event since it is right in your back yard. Pass the word to your friends and colleagues about this plastics celebration and help make it a success for all of us.

Cheers!

Gary

Future SPE Cleveland Section Programs

Month	Date	Topic	Location
April	14	Tour of Automation Plastics	Automation Plastics, Aurora
May	12	Moldex Presentation and Awards Night	Concept2Production, Macedonia
May	19	Awards Night---Akron	Quaker Station, Akron

It's not too late to register for TOPCON: Continuous Compounding!

See the registration information on Page 10 of this SPECsheet or go directly to the registration page using this link:

<http://www.4spe.org/spe-extrusion-conference-2014>

About the March Program

Case Western Reserve University's Center for Advanced Polymer Processing, CAPP, is a state-of-the-art center for advanced polymer blending and compounding and reactive extrusion at CWRU able to perform basic research and applied research and development in support of the Ohio and US plastics industry.

CAPP's three main lines of activity are:

- The development of advanced sensors that allow multiple rheological, physical, chemical and morphological quantities to be measured along the screw axis of twin-screw extruders;
- The development of advanced continuum and structural computational simulation capabilities;
- The integration of these two tools to develop new advanced and functional multiphase complex materials or optimize the performance of existing ones.

CAPP provides a number of services in support of industry, such as joint directly sponsored R&D projects, proof-of-concept and/or trial tests, and tailored sensor development;

The facilities available at CAPP are the following:

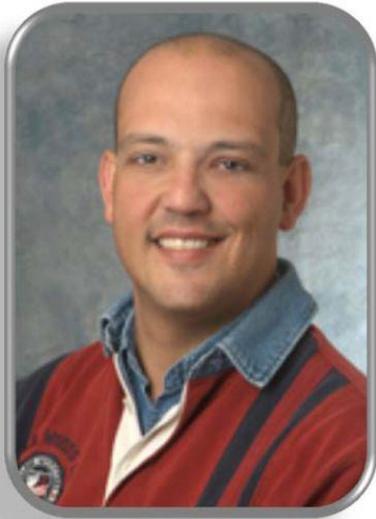
Rheometry: This laboratory occupies ~600 sq. ft in a two rooms in which the following shear and extensional rheometers are available for this research:

- A Paar Physica MCR501 controlled-stress rheometer, with a maximum torque of 300 mN.m and able to characterize rheologically samples between -50 °C and 350 °C. Available geometries include parallelplate and cone-and-plate configurations.
- A Haake MARS III rotational rheometer and able to characterize rheologically samples between -40 °C and 600 °C. Available geometries include parallel plates, cone-and-plate, double gap concentric cylinders, serrated plates, disposable plates, interfacial tension (double cone), DMA (for solid samples) and a RheoScope optical module (50x amplification). Under acquisition is a RheoNaut simultaneous rheometry/FTIR module.
- A TA Instruments ARES G2 controlled-strain rotational rheometer, able to work up to 450 °C, with a UV curing cell.
- A Haake CaBER 1 extensional rheometer, working under the capillary break-up principle, which is adequate to test low viscosity viscoelastic fluids from 0 °C to 100 °C.
- A SER extensional flow cell for melts that can be adapted to both shear rheometers.
- A MERA – Meissner Extensional Rheometry Accessory, for melts developed in-house, that can be adapted to both shear rheometers.

Extrusion and Compounding: This laboratory occupies ~600 sq. ft in a single room and has the following equipment available:

- For lab-scale continuous mixing and compounding applications the main equipment is a Haake Eurolab XL 16mm, 40:1, modular co-rotating twin-crew extruder and ancillaries. Throughputs vary from 1-5 kg/h.
- For lab-scale continuous mixing and compounding applications and on-line sensing, the main equipment is a Haake TSE 24mm, 40:1, modular co-rotating twin-crew extruder with 14 extra interchangeable P/T ports along the barrel for on-line monitoring.
- For lab-scale batch processes, there is a Haake PolyLab OS torque rheometer with a Haake Rheomix 600/610 (vol. ~60 cm³) static mixer, with various rotors.
- For lab-scale processing there is a Haake PolyLab Rheomex 19/25 single screw extruder with sheet, tape and ribbon, horizontal/vertical rod and capillary and slit dies.
- For micro-compounding applications there is one Haake MiniLab II Micro Compounder (min. volume of material is 7 cm³), which operates under the continuous extrusion with a force feeder principle, and a Haake MiniJet Piston Injection Molding System (min. quantity of material is 5g).
- For micro-processing applications there is one Haake Process 11 Micro Twin-Screw Extruder, which has a fully modular screw design and operates at throughputs as low as 20 g/h.
- A high-temperature screw cleaning facility.
- A hot press.

About the March Speaker



Dr. João Manuel Maia was born in 1970, in Barreiro, Portugal. He graduated in Technological Physics Engineering from the Technical University of Lisbon in 1992 and obtained his PhD Degree in Rheology from the University of Wales Aberystwyth in 1996, under the supervision of Professor Ken Walters, FRS. Between 1996 and September 2009 he was faculty at the University of Minho, Portugal.

Since October 2009 he's been with the Department of Macromolecular Science and Engineering of Case Western Reserve University, where he is currently Associate Professor. Since November 2011 he is the Director of CAPP – Center for Advanced Polymer Processing, of CWRU. His main research interests lie in the areas of extensional rheology and rheology applied to polymer processing, with an emphasis on the development of new functional multiphase polymeric materials, e.g. blends and composites, and on-line sensing of extrusion and compounding.

He has published more than 360 total, including 100 scientific papers in international refereed journals (86 published and 14 submitted), 7 scientific book chapters, 3 educational texts, 12 patents and 236 communications to scientific conferences of which 25 were Plenary/Keynote/Invited.

He was a Fulbright Fellow in 2007 and received the 2010 Annual Award of the British Society of Rheology, one of the oldest and most prestigious awards in Rheology, and the 2011 Morand Lambla Award of the Polymer Processing Society, the highest honor the PPS bestows on its members. He was the organizer and Co-Chairman of the XVIth International Congress on Rheology held in Lisbon, Portugal in August 2012 and is the co-organizer of the PPS-30, the International Congress of the Polymer Processing Society, to be held in June 2014 in Cleveland, OH, USA. He is the organizer of the 2013 Topical Conference of the Extrusion Division of the Society of Plastics Engineers, to be held in March 2013 in Cleveland, OH, USA.

He currently leads 4 scientific R&D projects and another 9 in cooperation with industry, for a total funding in excess of \$4,000,000. His research group is currently constituted by two post-doctoral researchers, fifteen PhD students and three undergraduate students.

SCREW TIPS

FOR PLASTIC INJECTION MOLDING

3 PIECE RING VALVES

5 PIECE RING VALVES

BALL CHECK VALVES

POPPET CHECK VALVES



COMPONENT MANUFACTURING AND DESIGN

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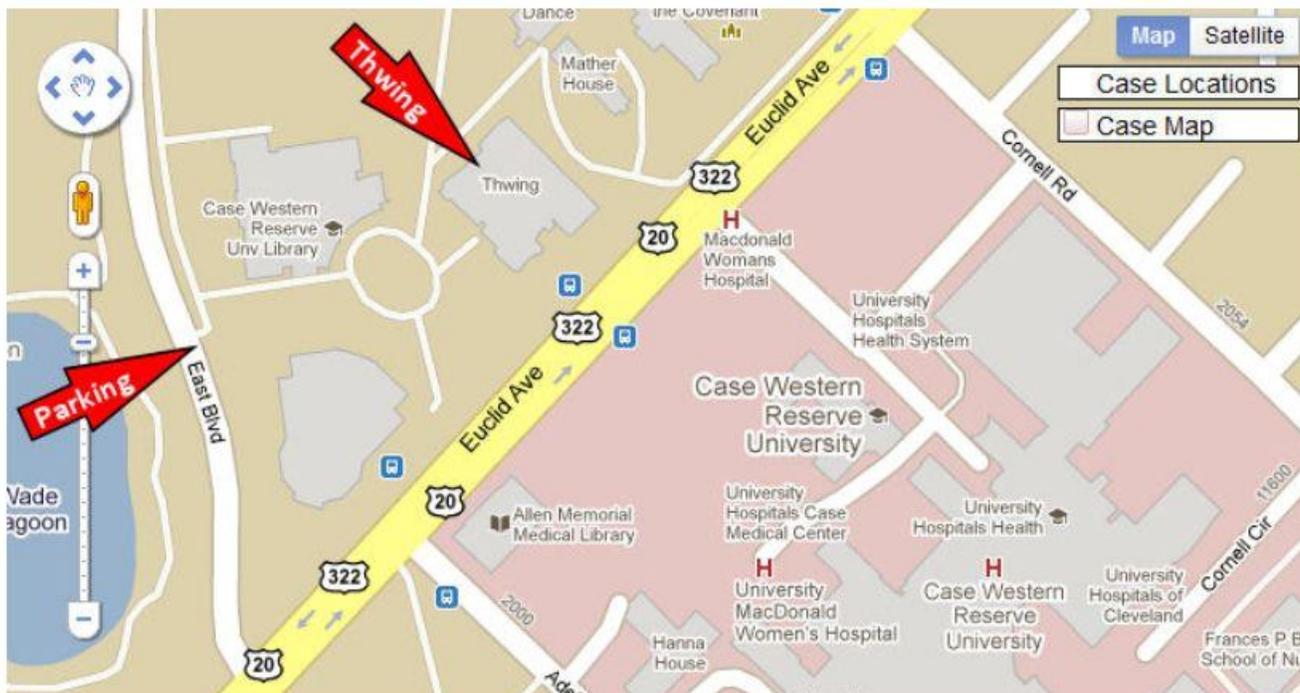
Fax: 330 225 8777 Internet: www.cmd-tip.com

Directions to March 11th Meeting

Available from CWRU at:

<http://www.case.edu/collabtech/Directions.html>

The Thwing Center, Case Western Reserve University, is located at 10900 Euclid Avenue, in Cleveland.



Cleveland/Akron Hosting March TOPCON

The Society of Plastics Engineers Extrusion Division and the Cleveland/Akron Sections will host a Continuous Compounding Topical Conference (CCT 2014) on March 11-13, 2014 at Case Western University in Cleveland, OH.

This program will feature 20+ presentations by industry experts and will include a review of fundamental mixing technologies on Day 1, continuous compounding core technologies and case studies on Day 2, and advanced/cutting edge technologies on Day 3.

A tour of the prestigious Case Western University laboratories will augment the technical program and provide 1st hand knowledge of extrusion and analytical equipment, techniques and practices.

Get the details here: <http://bit.ly/SPE-CCT-2014> and see the flyer at the end of this newsletter.

Akron Hosting September TPE TOPCON

Akron Section SPE will co-host 2014 TPE TOPCON "Building New Bonds" to be held at the Hilton Fairlawn Hotel from September 16-18, 2014. **Paper abstracts are due January 31, 2014.**

See the flyer at the end of this newsletter or click here <http://bit.ly/SPE-TPE-2014> for event details.

Board Meeting Minutes

February 10, 2014 SPE - Cleveland Section S03

Meeting was called to order at 4:46 PM by Gary Casterline with Jerry Blayne and John Sovis in attendance.

Treasurer's Report:

- Jerry Blayne reported that we had a very low activity month. Earned \$14.89 in interest. No payments were made. Motion passed to accept report by Sovis and Casterline

Program Committee:

- Took a tour of Automation Plastics where we will be having a tour on April 14. Worked out logistics with Harry Smith. Should be great tour. Will finalize agenda by mid-March for publication.
- Discussed Moldex3D demonstration at Concept2Production on May 12. This was also supposed to be our awards night too, but since the only awards are for the Science Fair and this topic may not be of interest to students and parents as well as there being limited space, we decided to not invite Science Fair winners to this event.

Science Fair:

- The science fair will be judged by Moris Amon and Bob Hotujak. We will give them certificates to finish filling out for the winners of the science fair. These will be given at the awards ceremony following the science fair. We will follow up with checks to their home address. Mary Dodge who manages the science fair has been informed of our judges, awards and intentions.

Future of Cleveland SPE:

- No new board members have been discovered. Nothing has changed in our status, but we are continuing to operate as if we will still be around next year.

TOPCON

- John Sovis, Jerry Blayne and Dan Crist have been calling in to the organizing meetings and offering to help as needed. Dan agreed to take reservations for the joint meeting with TOPCON attendees, Akron SPE and Cleveland SPE on Tuesday, March 11. This will be held at the Jolly Scholar at Case Western Reserve following the first half day of the TOPCON. At this point, Cleveland and Akron SPE are planning on sharing the cost of this event and making it open to all attendees at no cost to them.

Meeting was called to a close at 5: 27 PM.



CASTERLINE PLASTICS CONSULTING

GARY CASTERLINE
PRESIDENT



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Robert Koch
Midwest Regional Sales Manager

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bkoch@boymachines.com
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From the SPE-Cleveland Board

The SPE Cleveland Section Officers and Board of Directors Want to Wish All Section Members and Their Families Happy Holidays and A Prosperous New Year!

The SPE Cleveland Section has had a mixed year. Our membership has stabilized at almost three hundred, the finances are in the black by almost one thousand dollars for the first time in five years and we will be having a Topcon in Cleveland for the first time in ten years.

Unfortunately, this may all come to an end by June of 2014, because six months from now we will not have enough leadership to continue. Last spring we sent an email to inform the membership of this impending problem. We asked for a vote on direction for the future of SPE Cleveland section, comments and volunteers to help. The results were very dismal. Less than 4% bothered to reply! Of the ones who did reply:

- The majority voted to revitalize the section.
- The option to merge with another section received the second most votes.
- No-one voted to deactivate the section.

We also had one person volunteer and he is now on our board. The board was dismayed over this outcome. The 280 members who wouldn't even bother to take the few seconds needed to check one box and hit reply is an example of the apathy that is killing our section. However, the entire board volunteered to stay on one more year to work on saving the section.

Unfortunately, as of this writing we only have a total of four officers and directors who will continue into the 2014-2015 year. This is not enough to meet SPE Section Charter requirements.

What should we do?

The Current Section Officers and the Board of Directors are determined to not let the section fail from apathy. We need to increase communication in the section. We want to know what we are doing well and what we could change to make the section more valuable to our members. We want to know what you like or don't like about our meetings and how we could improve. We would like to hear from members on why the Cleveland Section has been and is important to them. We would like to know your opinion on how the section should reward members who serve on the committees, the board of directors and are the officers.

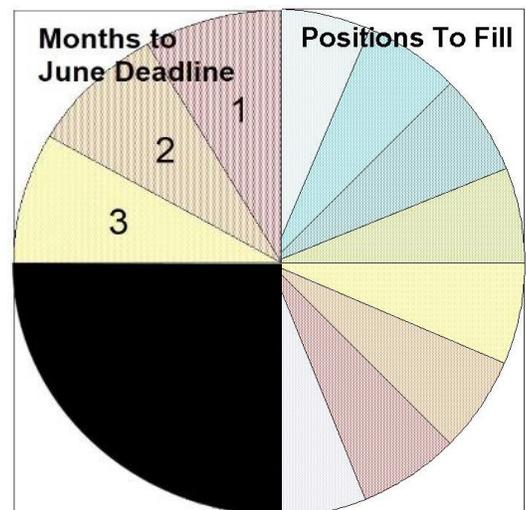
Starting immediately we will:

1. Display the countdown to doom which will now appear in the next six newsletters.
2. You will get a monthly update on the successes and failures in this campaign to save the Cleveland Section.
3. You will be contacted by newsletter, email, phone calls and in person to get your input on this situation and what we can do about it.

In closing, we know this will not be an easy battle. Apathy has been the status quo of most section members. We all need to work hard to turn this around. We think each one of us has to look in the mirror and except our part in saving or killing the Cleveland Section.

Where do you stand? Please click on the link below and take this short 8-question survey:

<https://www.surveymonkey.com/s/FMMVYKZ>



Mar-Bal Fact:

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With our **One-Source model**, you can eliminate separate molding and finishing costs by providing one mold with finishing where before you needed three or more. Let us show you how consolidating multiple parts or processes into one could be a substantial cost savings for you.

When you switch to Mar-Bal, production doesn't have to be a puzzle.

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Chagrin Falls, OH

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mar-bal.com





Don't miss this "high tech" event!

March 11-13, 2014, Case Western Reserve, Cleveland OH

The Society of Plastics Engineers Extrusion Division and the Cleveland/Akron Sections will host a Continuous Compounding Topical Conference (CCT 2014) on March 11-13, 2014 at Case Western University in Cleveland, OH. This program will feature 20+ presentations by academia and industry experts and will include a review of fundamental mixing technologies on Day 1, continuous compounding core technologies and case studies on Day 2, and advanced/cutting edge technologies on Day 3.

A tour of the prestigious Case Western University laboratories will augment the technical program and provide 1st hand knowledge of extrusion and analytical equipment, techniques and practices.

In addition, a tabletop display area and reception will allow you to mix and meet with colleagues and industry experts.

Program Agenda

Optional ½ Day Fundamentals Session - March 11, 2014

- Review of Extruder Types and the Unit Operations of Extrusion- Joe Golba, PolyOne Corp.
- Primer on Mixing for Melt Compounders- Prof. Ica Manas-Zloczower , Case Western Reserve University
- Feeding and Dosing of Raw Materials for Productivity and Profitability- Jaime Gomez , Coperion-K-Tron International
- Extruded Product Management for Customer Satisfaction- Chris Case, Reduction Engineering

Core Compounding Technologies and Case Studies - March 12, 2014

Morning session: The Melt Compounder's Extruder Tool Kit

- Mixing with Single Screw Extruders- Tim Womer, TW Womer and Associates, LLC
- TriVolution™ in Single Screw Kneading- Michael Lazorchak, B&P Process Equipment
- Co-Rotating, Intermeshing Twin Screw Extrusion- Paul Andersen, Coperion
- Counter-Rotating, Non-Intermeshing Twin Screw Extrusion- Chris Tucker, NFM Welding Engineers
- Direct Extrusion- Tips, Test Results and Reasoning- Charlie Martin, Leistritz
- Coupling Melt Compounding with Injection Molding for Increased Profitability- Matt Sieverding Krauss-Maffei /Berstorff

Afternoon session: Case Studies in Melt Compounding and Reactive Extrusion

- Liquid Color and Additive Melt Injection- Andrew Overend, PolyOne/ColorMatrix
- Latest Developments in Processing Biomaterials- Kim Young & Alex Utracki, Coperion
- One Step Polymer Chain Extension by Reactive Extrusion- Ying Shi, A. Schulman Inc.
- Reactive Extrusion Based Chain Extension For Engineering Nanocomposite Theology- Joe Golba, PolyOne Corporation

21st Century Compounding Technologies - March 13, 2014

Morning session: Process Monitoring and Control

- Keynote Speaker: Prof. Joao Maia, Case Western Reserve University
- On-Line Viscometry Measurement Techniques- Monica Gneuss, Gneuss, Inc.
- Measuring On-Line Color- Bob Furlan, Equitech International
- On-Line FT-NIR Developments and Options- Herman He, Thermo Scientific
- A New Paradigm in Process Control- Prof. Zhiqiang Gao, Cleveland State University

Afternoon session: Process Simulation for Design, Scale-Up, and Troubleshooting

- One Dimensional Process Simulation for Twin-Screw Compounding – Limitations and Opportunities- Adam Dreiblatt, Century Extrusion
- Applying Ludovic 1D Twin Screw Extrusion Simulation for the Analysis and Scale-Up of Melt Compounding and Reactive Extrusion Processes- Jane Spikowski, PolyOne Corporation
- Ximex™ 3D Process Simulation- Philippe David , Sciences Computers Consultants
- New Options for TSE Process Simulation- Prof. David Bigio, University of Maryland
- “Simulation Applied to SSE and/or Die Design- John Perdikoulis, Compuplast
- Simulation via the Manufacturing and Polymer Portal- Rich Markham, PolymerOhio

For the latest program details see this link: www.4spe.org/spe-extrusion-conference-2014

Corporate sponsors: ACS Group, Brabender Technologie, Bay Plastics Machinery, Coperion-K-Tron, Gala Industries, Gneuss, Leistritz, Plastics Technology Magazine, Reduction Engineering, Schenck AccuRate, Steer-America and Witte Pumps.

A limited number of corporate sponsorships are still available for \$1000. To become a sponsor, please contact Charlie Martin at cmartin@alec-usa.com or by phone, 908/685-2333, x616.

Cost to register:

- | | |
|------------|--|
| SPE member | \$425 on or before Feb. 15 th , \$475 thereafter |
| Non-member | \$525 on or before Feb. 15 th , \$575 thereafter (includes 1 year SPE membership) |

The optional March 11th Fundamentals session is included in the conference registration fee, if attended as a stand-alone event the price is \$200

To register: See this link www.4spe.org/spe-extrusion-conference-2014 or call Sarah Scovens @ 908/685-2333 or e-mail: sscovens@alec-usa.com

Hotel information: These hotels are all walkable to the event, when making the reservation request the “Case Western” discounted rate

- Courtyard Marriott - 2021 Cornell Rd, Cleveland OH, Ph: (216) 791-5678 (\$139/night, 0.4 miles)
- Doubletree by Hilton -10660 Carnegie Ave, Cleveland OH, Ph: (866) 430-2692 (\$126/night, 0.4 miles)
- Intercontinental - 9801 Carnegie Ave, Cleveland, OH Ph: (216) 707-4100 (\$225/night, 0.8 miles)



SOCIETY OF PLASTICS ENGINEERS

Cleveland Section

COLLEGE SCHOLARSHIPS

AWARDS OF UP TO \$1000 EACH

FOR STUDENTS WITH AN EXPRESSED OR DEMONSTRATED CAREER INTEREST IN THE PLASTICS INDUSTRY

APPLY TO:

SPE Cleveland Section

Attn: Gary Casterline

7895 Raglan Drive

Warren, OH 44484

Email: gcasterline@gmail.com

Entry must be POSTMARKED by March 14, 2014

Eligibility

1. Applicants must be
 - a. Seniors in good standing at a public or private high school
 - b. Students in good standing at a 4-year/2-year technical program or Master's/Doctorate Program.
2. High school seniors must show acceptance at a two or four year college.
3. Preference will be given to students who are members and/or whose parents are members of the Society of Plastics Engineers.
4. Applicants must have local ties to the Northeast Ohio area.

Criteria

1. Applicants must have demonstrated or expressed interest in the plastics industry.
2. Applicants must be majoring in or taking courses that would be beneficial to a career in the plastics industry. This would include but are not limited to plastics engineering, polymer science, chemistry, physics, chemical engineering, mechanical engineering, industrial engineering, business administration.
3. Financial need of applicant will be considered.

Application Procedure

1. Complete the application form.
2. A high school or college transcript of grades.
3. Two references. A high school or college instructor is recommended at minimum.
4. A one to two page typed statement telling why the applicant is applying for the scholarship, the applicant's qualifications, experience, and background with the plastics industry, and applicant's educational and career goals.

Awards

Scholarships will be awarded at the discretion of the Society of Plastics Engineers Scholarship Committee. Scholarships are awarded for one year only, but may be rewarded annually for up to three additional years.

The Society of Plastics Engineers scholarships are awarded without regard to race, sex religion, age or national origin. The Society of Plastics Engineers will not award scholarships to applicants who are not qualified and reserves the right not to award a scholarship in a given year if it so chooses.

SOCIETY OF PLASTICS ENGINEERS - CLEVELAND SECTION

SCHOLARSHIP APPLICATION FORM

AWARDS OF UP TO \$1000 EACH

APPLICANT: Please complete this form in as much detail as possible. Use extra sheets of paper if required. We may contact your counselor/advisor and references for information. We may also contact the applicant for a formal interview. This application is good only for the school year listed. You must re-apply each year.

Date _____

For School Year: **2014-2015**

Name _____ Home Phone Number _____

Street _____ Apartment _____

City _____ State _____ ZIP Code _____

High School _____ Counselor _____

College _____ Advisor _____

Intended occupation or career interest _____

How will the proposed course of study help you in your intended occupation? _____

On separate paper, please write a one or two page discourse describing your interest and enthusiasm in pursuing a career in the plastics industry.

List two academic references (instructors or supervisors), including addresses and telephone numbers, who are familiar with your scholastic activities, work habits and interests.

Please list other loans, grants, scholarships and reimbursement programs available to you.

Send to: Gary Casterline Application Postmarked Deadline: **March 14, 2014**
7895 Raglan Drive
Warren, OH 44484

Or Scan and email to: gcasterline@gmail.com