

THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

Vol. 47, No. 2

April 2010

www.midlandacs.org

From the Chair

Awards Honor Contributions

As I said in my Chair message last month, the strength of our Section is in our volunteers, both members and nonmembers. This brings me to the topic for this month's column.

One of the most gratifying events that the Section performs is the recognition of its members and others who have had an effect on the Section and community. Soon, our membership will have the opportunity to acknowledge individuals within our Section area involved in science education. The Spring Science Education Recognition Dinner is chaired this year by Diana Deese and is scheduled for April 22 at the Dow Corning Corporation cafeteria (see page 4).

All members have the opportunity to nominate individuals for recognition by our Section. Who has gone the "extra mile," put their words into action, without acknowledgment, and deserves to be recognized? There are a number of categories that the Section would like to recognize. But this cannot happen if we do not nominate people. It does not take very much time to write a nomination and submit it to the Awards Committee and it can have a major impact on someone's life. If you are not sure what awards we have or have questions about

them, please contact Diana Deese (989-496-5277).

We were privileged to present an ACS National Presidential proclamation in Orlando, Florida, this year to the Pittcon Conference. This was for their over 60 years of involvement in education and providing assistance to schools where the Pittcon Conference is held each year. By estimate, over the past 10 years, Pittcon has donated funds and supplies to area schools in excess of \$1 million. The proclamation provided by Dr. Tom Lane was presented to the President of Pittcon and Chair of the Science Week Education. They graciously received, acknowledged, and appreciated the proclamation, and it was given public recognition.

Thank you to all our volunteers.



John Blizzard



Accepting the proclamation on behalf of PITTCON were Nicholas Barsic (2010 PITTCON Science Week Chair) and Annette S. Wilson (2010 PITTCON President). Midland Section Chair John Blizzard is on the left; Past-Chair Angelo Cassar is on the right.

In This Issue

Chair Column	1
Earth Day	1
Kids & Chemistry	2
PITTCON Events	3
Letter to the Editor	4
Central Regional Meeting	4
Science Education Dinner	4
MMI Turner Alfrey Course	5
Chemical Landmarks	5
In Past Issues	6

Calendar for April/May

Apr 15	CERMACS Abstracts Due
Apr 19	Board of Directors Mtg Science Dinner Reserv. Due
Apr 22	Science Education Dinner
Apr 23	Science Demos
Apr 24	Earth Day at MCFTA
May 10	Midland Chemist Deadline
May 17	Board of Directors Mtg

Gina Malczewski, K&C

Earth Day April 24

GREEN is all the fashion these days, and it's time we recognize plants, our source of inspiration!

Did you know that on average, each person eats 33 lb of bananas per year? That 1/3 of the earth's land surface is covered by forests?

"Plants—The Green Machines" will be the focus of the 40th anniversary of Earth Day, which will be celebrated Saturday, April 24, 10 a.m. to 2 p.m. at the Midland Center for the Arts.

All activities are free and open to the public; there will be plants available to participants without charge. In addition to information about botanical subjects, there will be exhibits about solar and wind power, eco-friendly fashions, plant-related chemistry, and recycling.

For more information or an exhibit form (due April 14), please contact Debbie Anderson at MCFTA (631-5930, X1227).

If anyone wishes to volunteer to work at the ACS booth, contact:

- Gretchen Kohl
gretchen.kohl@dowcorning.com
- Gina Malczewski
gina.malczewski@dowcorning.com

Mark Torregrossa, from TV-25 and the Weather Garden, will be at Earth Day. Hope to see you all there!

Gina Malczewski and Lisa Thackery, Kids & Chemistry

K&C Goes to PITTCON, Plans Other Events

Outreach activities have been in full swing, and things just keep getting busier. In late February, several volunteers performed science demonstrations at Meridian Elementary to celebrate the end of the science fair. A team of four attended Pittcon Education Week in Orlando, trained a session of teachers ("Bringing Science to Life in the Classroom" (BSTL) program), and then did 30-minute chromatography activities with about 550 third through eighth graders over a period of three days.

There were several other events that same week:

- Educators Day was held at The Dow Event Center with the Saginaw Spirit Hockey team. ACS was co-sponsor with Dow Chemical; Dave Stickle organized the ACS demos.
- Mike Ferritto and Chuck and Barb Roth conducted another BSTL session for about 30 teachers at the Michigan Science Teachers Association meeting in Lansing. (Attendees received continuing education credits.)
- Lisa Thackery and Ronda Grosse led a group of volunteers in hands-on activities on a "GREEN" theme for kindergarten through fifth grade at Hemmeter school in Saginaw Township (SPARK day).

On March 7, Gina Malczewski presented "Water is Wonderful" at the Midland Center for the Arts. We also

helped the Midland Historical Society set up electrolysis-related experiments for fourth grade tours of the Dow Museum that began in early March.

Also through February and March, volunteers ran short 30-minute chemistry activities for Big Brothers Big Sisters as part of their Teaming Up with YOUTH afterschool programs. So far for this program, five different elementary schools have been visited throughout Midland County. We are always looking for those interested in running a session.

We also are working with National ACS to implement a new pilot program called Science Coaches. Our section was one of six throughout the country asked to participate in the program launched under the direction of Tom Lane's 2009 Board Presidential Task Force on Education. The ACS Science Coaches program is designed to provide a means by which ACS members can partner with local teachers to support teaching and learning in middle school classrooms.

Each coach-teacher team will work together to determine the appropriate type and frequency of assistance that is most beneficial to the teacher and students. Coaches will serve as a resource to the teacher and interact with the teacher and/or students on a regular basis. The time commitment can vary from once per week to once per month, depending on the needs of the teacher and students. If you have a teacher that you would like to partner with or are interested developing in such a relationship in a local classroom, please contact Lisa Thackery. Each partnership will be granted a \$500 stipend to use in their class-



Gina Malczewski displays the results of T-shirt chromatography during Pittcon Education week in Orlando.

room and National will fund up to eight partnerships in our Section.

With all that is happening, we are particularly pleased that new volunteers have become involved; we encourage others to consider participation.

Upcoming Events

April 23: Science demos at St. Thomas Aquinas School

April 24: Earth Day, MCFTA 10-2, free exhibits and demos, plant giveaway; Theme: "Plants—The Green Machines"

Ongoing: Big Brothers Big Sisters, 30 minute sessions at elementary schools in Midland Co.

Special Thanks to Volunteers

Joan McMahon	Renee Kulling
Heather Shawl	Karmen Asche
Bill Inman	Gretchen Kohl
Jim Tonge	Bernadette Harkness
Angelo Cassar	Andrea Alexander
Katelyn Carter	Scott Rettelle
Cassie Hall	Jeff Seifferly
Mikal Inman	

Contact

Lisa Thackery
lisa.thackery@dowcorning.com
989-496-4077



John Blizzard, Gina Malczewski, Angelo Cassar, and Gretchen Kohl

Midland Section Conducts Workshops at PITTCON Orlando

For the fourth year members of the Midland Section Science Literacy group were asked to present both teacher and student workshops at the 61st annual meeting of the Pittsburgh Conference (PITTCON). In addition to their general technical conference and analytical equipment exposition, PITTCON hosts "Science Week" as an educational outreach effort, held this year in Orlando, Florida. A variety of science-related activities for Orlando-area teachers, as well as their students, was planned from February 27 to March 3, 2010. On February 27, the Midland Section ACS held an educator workshop based on its "Bringing Science to Life" program, in which 26 teachers participated. Four presenters (John Blizzard, Gretchen Kohl, Angelo Cassar, and Gina Malczewski) coached these educators through 16 hands-on experiments, and each teacher received a \$500 grant for his/her school. The five teaching kits used in the workshop were also donated (by raffle) to the participating teachers.

The Midland Section ACS presenters also taught "Paper Chromatography" to children pre-K through eighth grade, in 30-minute sessions, where students, teachers, and parent chaperones learned some basic chemistry, successfully separated pigment mixtures from water-based ink pens, and produced personal artworks. Over 500 Orlando area parochial school students participated. The presenters were assisted by a very able high school student from the Pittsburgh area (Kayla).

A separate workshop was presented for Camp Chemistry students, the children of PITTCON organizers, ranging from ages three to about ten. Both paper chromatography and super absorbency were demonstrated, followed by a chromatography hands-on activity.

Another highlight of the week was the PITTCON Educators Awards Dinner, at which John Blizzard (2010 Midland Section Chair) and Angelo Cassar (2009 Midland Section Chair) conferred an ACS President's Proclamation Award to PITTCON honoring their surpassing 60 years of "service, performance, dedication, and commitment to analytical chemistry and chemical education and by promoting chemical and science education through the outreach and support program of Science Week." This award was of great significance to the PITTCON organizers and a picture of John Blizzard presenting the award was featured in the PITTCON Today magazine printed on Tuesday, March 2, 2010.

Feedback from the teacher and student workshops was very positive. The following email letter was forwarded as one of many enthusiastic responses.



tended. The information was useful and the ideas offered were wonderful. I will definitely attend again. An added bonus was the grant money, and being from a private school, I can't tell you how much that will help us. I have already returned my form to you.

The best experience came when I brought all 145 of my middle school students to the student workshops. It was well organized, interesting, and captivated my students. I had many of them write evaluations after we returned to school and there were no criticisms at all. The students loved the workshops and learned a lot. Even those eighth grade boys, who moaned about going beforehand, really enjoyed everything. I even had one student who wrote that she had never considered a career in science before, and now she thinks she wants to follow that path.

Again, I thank you for organizing this event and I thank all the organizations that made it possible. We will certainly attend again in the future.

Sincerely,
Michelle Moyer
Ascension Catholic School

Dear Mr. Barsic,
I wanted to send you personal thanks for all the hard work you did to make PITTCON such a rewarding experience for teachers and students.

As a teacher, I attended the weekend workshops and I must tell you that it was without a doubt the best science workshop I have ever at-



Letter to the Editor

Increase Technical Programs

Editor's note: Opinions expressed in letters to the editor reflect the view of the contributor(s) and should not be taken to reflect the views of the Midland Section, other Midland Section members, the Midland Section Board of Directors, or the American Chemical Society.

In the 2009 Midland Section Annual Report, Part II – Annual Narrative Report, C. Local Section and Chair Goals, 1. 2009 Goal Attainment, b) 2009 Chair's Goals and Assessment, 5), is the goal and statement: "Create a Silver Circle Committee of Retired Chemists to assist Section leaders. This committee may choose to have their own projects. When the Section decided to pursue more outreach than technical programming, many retiree members objected and so were encouraged to use this as an opportunity to form a Silver Circle Committee and

charter their own goals, milestones and events (and co-events). No further action was pursued by this group at this time."

I also would like to enhance the Midland Section's technical programming. If those retirees (or anyone else) who want to see an enhancement in the Section's technical programming would contact me I will try to coordinate efforts to bring this about. I want your ideas as to the type of technical programming desired and other ideas in this area. I can be reached at dilli1wl@cmich.edu or w.dilling@att.net or 631-1621 (home) or 774-3268 (office).

Wendell Dilling

The annual report can be found at: : http://midlandacs.org/uploads/images/annual_reports/2009MidlandSectionAnnualReport.pdf.

Call for Papers

Central Regional Meeting Coming Up

The Dayton Section of the American Chemical Society invites you to the 2010 Central Regional Meeting of the American Chemical Society (CeRMACS-2010), June 16-19, 2010, at the Dayton Convention Center and Crowne Plaza Hotel in historic downtown Dayton, Ohio. Abstracts in all fields of chemistry are being accepted through April 15, 2010.

The theme for CeRMACS-2010 is *Chemistry: Reacting to Provide New Technologies*. In addition to the traditional symposia on Analytical, Biological, Inorganic, Organic, Physical, and Polymer Chemistry the meeting organizers are planning symposia on:

- New Vistas in Biotechnology: Chemistry, Materials & Applications
- Chemistry & Materials for Alternative Energy
- Metamaterials: from RF to NIR
- Materials for Aerospace and Space Applications
- Chemical Education Symposium and HS Teacher Award
- Computational Materials Science: Theory, Modeling, & Simulation

- Nanomaterials: Synthesis, Structures, Functionalization & Applications
- Laser-Based Technologies for Chemical Measurements
- Small Business Innovations in the Chemical & Materials Industries
- Chemistry for Peace: Building on the Dayton Accords

Don't forget about social events—the CeRMACS-2010 event not to be missed is the totally awesome *Chemipalooza* at the Boonshoft Museum of Discovery. Explore the museum while consuming fabulous food and cocktails. Take in the free planetarium shows or dance to the music of a live band playing your favorite '80s tunes.

Visit <http://CeRMACS2010.org> for more information about registration, abstract submission, social events, and awards.

Diana Deese, Awards Chair

Science Education Recognition Dinner

Thursday, April 22, 2010
6:00 p.m. to 9:00 p.m.

Dow Corning Cafeteria
Midland, Michigan

Program

6:00 p.m. Reception
6:30 p.m. Buffet Dinner
7:30 p.m. Awards Presentations

Teachers and students will be recognized for their outstanding achievements in science education at this 19th annual event. The cost of the dinner is \$18.00 per person and includes appetizers, dinner, dessert, and beverage. Please respond by mail using the form below. Your dinner reservation request must be received by April 19, 2010. You may also register by e-mail to Diana Deese (diana.deese@dowcorning.com) and pay at the door. This event is sponsored by the Midland Section of the American Chemical Society and underwritten by grants from The Dow Chemical Company and Dow Corning Corporation. For further information, contact Diana Deese at 989-496-5277.

To reserve a place at the 2010 Spring Science Education Recognition Dinner, return this form with payment (\$18.00/person) by **April 19, 2010**, to Diana Deese, Dow Corning Corporation., 2200 W. Salzburg Road, PO Box 994: Mail #AUB1007, Midland, MI 48686.

Name(s)

Affiliation

Address

Phone/Email

ACS member? Y N

Enclose payment of \$18.00 per person. Checks should be payable to "Midland Section ACS."

Steven Keinath, Director

MMI Announces 2010 Turner Alfrey Course

Harnessing Biocatalysis to Overcome Current Challenges in Polymer Chemistry and Material Science

Professor Richard A. Gross

June 7-11, 2010
Monday-Friday, 3:00-6:00 p.m.

Lecture Hall
Michigan Molecular Institute
1910 West St. Andrews Road
Midland, MI

Prof. Richard Gross is the Herman F. Mark Professor of Polymer Science, Department of Chemical and Biological Sciences, Polytechnic Institute of New York University.



Fee: There is no fee for auditors if they belong to organizations that are financial sponsors of the Turner Alfrey Visiting Professor program: The Dow Chemical Company, Dow Corning Corporation, Central Michigan University, Michigan State University, Saginaw Valley State University, Mid-Michigan Section of the SPE, and Midland Section of the ACS. For all others, a course fee of \$400 will be required at registration. All participants, however, must pre-register.

Registration: Pre-registration is required no less than one week in advance with the registrar at www.mmi.org, or registrar@mmi.org, or by calling 989-832-5555, ext. 571.

Course Abstract

We stand at the threshold of a revolution in the way industry will increasingly rely on biologically based materials and processes. Launching new products has become dependent on meeting life-cycle analysis criteria. Significant additional costs are imposed on industrial processes that require disposal of toxic chemicals and by-products. To reduce health-related risks faced by workers at chemical manufacturing facilities new methods are desired that can be conducted at

or near ambient temperature-pressure conditions. These driving forces are accelerating the rate-of-change in the way chemical processes are designed and conducted. Completely new methods will emerge that reach well beyond incremental improvements to the discovery of new paradigms in synthesis and processing.

Biocatalysis, whether *in vitro* (cell free) or *in vivo* (whole cell), offers many features that are attractive for polymer/material synthesis, processing and utilization, that include: (1) *control of polymer structure*: enzyme regioselectivity avoids use of protection-deprotection steps during synthesis of functionally complex monomers, macromers and polymers; (2) *simplicity of reactions conducted over a wide range of conditions*: e.g., bulk systems, organic media, biphasic conditions, emulsions and supercritical fluids; (3) *multistep conversions in aqueous media*: whole cells house numerous enzymes under strict metabolic control that allow complex reaction pathways to be conducted within the confines of single cells; (4) *metabolic and protein engineering*: when used in combination provide powerful tools to dramatically increase process efficiency of biocatalyzed chemical transformations; and (5) *green chemistry*: the use of 'environmentally friendly' methods for synthesis and processing is good business.

Enzymes allow reductions in processing temperatures, provide metal-free and safe catalysts, and convert multiple-step chemical processes to one-pot microbial transformations, and their natural origin allows safe disposal and degradation upon disposal. This course will discuss basic concepts in enzyme catalysis; current state-of-the-art biocatalytic routes to monomers, macromers and polymers; uses in biomass and polymer degradation; and future opportunities.

Lecture Topics Outline

Lecture #1 - *Fundamentals in Enzyme Catalysis*: Effects of organic media polarity, water content and medium engineering on stability and activity; enzyme modification and immobilization; reaction environments in which enzymes function; immobilization studies using *Candida antarctica* Li-

pase B as a model system.

Lecture #2 - *Plant Biomass and its Conversion via Enzyme Catalysis to Chemicals*: Complexity of plant cell wall structures and enzymes used to degrade lignin, cellulose and other interlocked polysaccharide cell-wall components; adapting enzymes from biomass breakdown for cleaning of surfaces (e.g., bio-scouring or bio-polishing) and degradation of synthetic polymers (PET and PVAc).

Lecture #3 - *Biobased Monomers and Plastics*: New-to-the-world plastics including poly(hydroxyalkanoates), poly(lactic acid); older bioplastics (nylon 11, rayon, acetate rayon); biobased monomers (1,3-propane diol, ethylene, acrylic acid, isoprene); a new route to ω -hydroxyfatty acids.

Lecture #4 - *Immobilized or Cell-free Enzyme-catalyzed Polymerization Reactions*: Discussion will focus on potato phosphorylase, lipases, cutinases and proteases.

Lecture #5 - *Part I, Microbial Surfactants*: Complex building blocks with interesting biological and physical properties. *Part II, Enzyme-catalyzed Routes to Control Material Lifetime*.

National ACS

Chemical Landmarks

Did you know that ACS designates National Historic Chemical Landmarks to celebrate achievements in the history of the chemical sciences? The intention of the program is to enhance the public's recognition and appreciation of the contributions of the chemical sciences and chemical engineering to modern life and to increase the sense of pride in their practitioners. The program does this by recognizing and celebrating landmark achievements of chemists and the chemical enterprise.

Currently there are more than 60 designated landmarks, including Herbert H. Dow's bromine production process in Midland. For more information on National Historic Chemical Landmarks, visit www.acs.org and go to Education/Explore Chemistry/Chemical Landmarks.

Wendell Dilling, Director and Historian

In Past Issues of *The Midland Chemist*

40 Years Ago This Month

In *The Statement on Discriminatory Behavior* by D.R. Petersen: "At the January 20 meeting of the Board of Directors of the Midland Section, a resolution was passed concerning discrimination. It is worth comment because it represents a positive position by a local ACS section on a point of some confusion in the civil rights area. The specific problem is: how should the society interact with organizations which have restrictive membership clauses?"

The events which led to the resolution began some months ago. In an attempt to revitalize some of the activities of the Midland Section, program chairman R.G. Asperger arranged a series of special lectures for the 1969-70 season. Some of these included a social hour and dinner prior to the lecture, using the facilities of the local BPOE Lodge (Elks Club).

Following one of these lectures, in November, a member of the Midland Section raised an objection to the use of the Elks Club rooms for ACS activities. He was opposed since he, as a non-Caucasian, is prohibited from membership in the BPOE and so felt unwanted there, even as a guest.

Subsequent investigation by the Executive Committee verified that membership in the local Elks organization is indeed restricted to male, white citizens. These requirements are established by the national Grand Lodge BPOE, and so are out of the direct control of the local group. The membership clause was tested by vote at the most recent meeting of the Grand Lodge in 1969, but no change was authorized, according to Midland's Exalted Ruler T. J. Rezmer.

This was reported at the December 19 ACS Board meeting, and following discussion, Chairman K.L. Burgess appointed a study committee of L.C. Dorman, E.L. Graham and D.R. Petersen to draft a policy statement for the Midland Section in the civil rights area. This statement was to aid members of the Section when officially "dealing and cooperating with organizations and purchasing services and materials from businesses."

In its study, this committee learned through contact with the Washington

office that no ACS policy covering this point has been formulated, either at national or local levels, to the knowledge of the Executive Secretary or those on his staff.

The ACS posture concerning overt acts of racial discrimination is firm and a matter of record. It grew out of an incident which took place at the Miami Meeting in 1957. Certain hotels in Miami implied that they would restrict access to some of their rooms and facilities, using race and color criteria to do this. The Executive Secretary of the Society acted to change this, and was later supported by the Council and Board in an action reported in the Official Minutes of the 131st ACS National Meeting (*C&E News*, May 20, 1957, p. 59)....

After thorough discussion, the [Midland Section] study committee proposed the statement already mentioned; it was presented as a resolution at the January 20 meeting of the Board of Directors, voted upon, and accepted....

Editor's note: The full text of the resolution is reprinted below.

Statement on Discriminatory Behavior

Midland Section ACS

The right of a private organization to set its own standards of membership is recognized. Since, however the American Chemical Society does not use race, color, or national origin to establish criteria for its membership, and since the members of the Society are thus a diverse group, it is recommended that our local section of the American Chemical Society manage its own affairs, and those carried out with other organizations, under the guidance of the following:

The Midland Section should not knowingly support, or carry out activities in conjunction with, another organization whose membership policies include restrictions based on race, color, or national origin; and

The Midland Section should not knowingly support, sponsor, or become otherwise involved in activities in which discriminatory behavior based on race, color, or national origin is practiced.

Prepared for the Board of Directors (1-20-70) by L.C. Dorman, E.L. Graham, and D.R. Petersen

30 Years Ago This Month

In *Dow Lauded for Promoting Industrial-Academic Cooperation*: "President James D. D'Ianni and President-Elect Albert C. Zettlemoyer in their reports to the Council each noted the involvement of The Dow Chemical Company in promoting industrial-academic cooperation. Both reports appeared in the agenda for the March 26, 1980, council meeting in Houston."

20 Years Ago This Month

In *Midland Section, American Chemical Society, Sixth Authors' Night, Tuesday, April 10, 1990, Central Michigan University*: For those of you who are familiar with previous Authors' Night Events you will notice that this meeting is being held during the Spring rather than the traditional Fall time period. One of the reasons for this change is to recognize some of our younger colleagues. For example, the opening ceremony this spring will include the student awards given annually to outstanding students at the institutions of higher education within the Midland Section of the ACS. You are all cordially invited to attend this double recognition evening. The meeting will be held in the new Industrial Engineering Technology Building on the Central Michigan University campus in Room 116-216. 7:30-7:35, Welcome; 7:35-8:00, Student Awards Presentations; 8:00-9:00, Poster Presentations, Refreshments on site. The 1990 Authors' Night recognizes all Midland Section members who have published scientific papers, books or obtained patents during 1988 and 1989.

10 Years Ago This Month

In *MIT Professor Plans Lectures and Dinner Presentation*: "Dr. Edwin (Ned) Thomas of MIT will give a series of lectures on polymer morphology as the Turner Alfrey Visiting Professor at the Michigan Molecular Institute from May 15 to 19. Dr. Thomas will also give a dinner presentation May 16 during a joint meeting of the Midland Section of ACS and the Mid-Michigan Section of SPE. The Midland Section of ACS and the Mid-Michigan Section of SPE are among the sponsors of Dr. Thomas's visit."



Global Language Translations and Consulting, Inc.

Technical translations since 1996



FAST-TRANS™

Machine Translation (MT)

- Fastest turnaround
- Lowest cost
- Rapid document screening
- "Gist" type translation
- Text only

KWIKTRANS™

Machine Aided Translation (MAT)

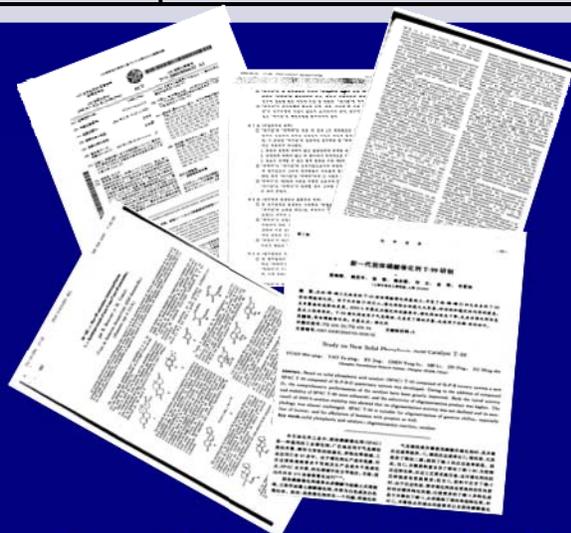
- Human post-edits of MT
- Better quality than Fast-Trans
- 80%-90% of full human quality
- Charts, Tables, Graphs

Human Translation (HT)

- Best quality
- Native language translators
- Subject Matter Experts
- Competitive rates
- Volume discounts

MT/MAT Languages:

- Arabic
- Chinese
- Dutch
- French
- German
- Greek
- Italian
- Japanese
- Korean
- Portuguese
- Russian
- Spanish
- Swedish



Convert PDF Image / Hardcopy → TEXT

Customized requests:

- Claims by Human, rest by MT
- Claims and Examples by Human
- Pages 2-4 by Human, rest by MAT
- Claims ONLY
- MT today, HT in two weeks

Optimize your research by applying precision only where you need it!

Over 70 languages available for Human Translation – Patents, MSDS, Contracts, Package Inserts, Labels...

Telephone interpreting 24/7 available in 150 languages

Request a translation TODAY!

WWW.GLTAC.COM

877.68TRANSLATE

877.688.7267

Midland Section Sponsors



Living.
Improved daily.

The Midland Chemist is published six times a year by the Midland Section of the American Chemical Society.

American Chemical Society
Midland Section
P.O. Box 2695
Midland, MI 48641-2695
<http://www.midlandacs.org>

Volunteer Staff

Scott Rettelle Co-editor
989-496-5099
newseditor@midlandacs.org
Amy Tesolin-Gee Co-editor
newscoeditor@midlandacs.org
Dave Baker.....Writer
Peggy Hill..... Writer

Please submit all articles and photographs to the editor. An editorial calendar and instructions for article submission are on the Midland Section website on the Communications|Newsletter menu.

Neither *The Midland Chemist*, nor the Midland Section, nor the American Chemical Society assumes any responsibility for the statements and opinions advanced by contributors of or to *The Midland Chemist*.

©Copyright 2010 Midland Section of the American Chemical Society

The Midland Chemist is now primarily available online with publication notification by e-mail. If you are currently receiving The Midland Chemist as a hardcopy, this means we do not have an e-mail for you. If you do have e-mail and would prefer to get the publication electronically, please notify the Editor at newseditor@midlandacs.org. However, if you do not have e-mail, we are happy to provide the publication as hardcopy. If you have questions about events and only electronic communication information is listed, feel free to contact the Section Chair, John Blizzard, at 989-496-1434.

Place postage
here

AMERICAN CHEMICAL SOCIETY
Midland Section
P.O. Box 2695
Midland, MI 48641-2695
RETURN SERVICE REQUESTED