



The Minnesota CHEMIST



April 2008



- * GPC/SEC Analysis
- * GPC/SEC Polymer Standards
- * GPC/SEC Columns * Waters™ 150C Parts
- * WISP 710/712 Parts

Request your free catalog online

www.ampolymer.com
 American Polymer Standards Corporation
 8680 Tyler Blvd., Mentor, OH 44060

Phone: 440-255-2211

Fax: 440-255-8397



DESERT ANALYTICS

LABORATORY

- ☉ CHNOSP Halogens
- ☉ Metals by AA/ICP
- ☉ Ion Chromatography
- ☉ Trace Analysis
- ☉ Coal/Petroleum

≡ Fast, Reliable Service ≡

No Charge for Phone/Fax Results

P.O. Box 41838 245 S. Plumer, #24
 Tucson, AZ 85717 Tucson, AZ 85719
 Fax 520-623-9218 Phone 520-623-3381
 Web: desertanalytics.com
 E-mail: thelab@desertanalytics.com

ANALYSIS FOR THE CHEMICAL ELEMENTS

Analytical Testing Services *We solve the difficult applications!*

Lab Services

- Polymer Deformation
- Polymer Analysis
- Method Development
- Consulting
- Expert Witness

Lab Equipment

- LC
- DSC & TGA
- FTIR
- GC
- ATR
- ESCA & NMR
- Light Scattering
- Online LC/FTIR

Jordi also manufactures a complete line of HPLC columns & accessories. Call today for a catalog!

**72 HOUR
RUSH SERVICE!**

Call **TODAY** for more info!
(508) 966-1301



Associates, Inc.
4 Mill Street, Bellingham, MA 02019

Visit us at: www.jordiassoc.com
email: jordiassoc@aol.com



micron inc.

ANALYTICAL SERVICES

MATERIALS CHARACTERIZATION

MORPHOLOGY CHEMISTRY STRUCTURE

SEM/EDXA, TEM/SAED, EPA/WDXA
XRD, XRF, ESCA, AUGER, FTIR
DSC/TGA

3815 LANCASTER PIKE WILMINGTON DE. 19805
Voice 302-998-1184, Fax 302-998-1836

E-Mail micronanalytical@compuserve.com
WEB PAGE : www.micronanalytical.com

We would love to place your company s
ad in The Minnesota Chemist .

For rate information, contact:
Heather Sklenicka, (507) 288-2772,
hms@cloudnet.com.

Chemical Analysis Services



CHEMIR
Analytical Services



- Materials Identification
- Deformation
- Polymer Analysis & Testing
- Failure Analysis
- Contaminant Identification
- Consulting Services
- Legal Services



800.659.7659

www.chemir.com

THE MINNESOTA CHEMIST

Official Publication of the Minnesota Section of the American Chemical Society

(ISSN 0026-5416)

VOLUME LX

April 2008

NO. 7

NEWS OF THE MONTH

2 SUPPORT OUR ADVERTISERS

4 EDITOR'S PAGE

EVENTS CALENDAR

IN THE NEWS

--Winchell Undergrad
Research Conf.

--Our MNACS fabulous
volunteers!

5 IN THE NEWS

--January Executive
Committee Meeting minutes

6 IN THE NEWS

--February Executive
Committee Meeting minutes

7 APRIL MN ACS MEETING

--April 21, 2008

EDITORIAL STAFF

EDITOR-IN-CHIEF

Nicole Martens
3M Center, Building 207-BW-09
Room BN-41
St. Paul, Minnesota 55144
(651) 733-7292
ntmartens@mmm.com

MANAGING EDITOR

Heather Sklenicka
5120 Florence Drive NW
Rochester, Minnesota 55901
(507) 288-2772
hms@cloudnet.com

DISTRIBUTION EDITOR

Sue Lee
Land O Lakes
P.O. Box 64101 MS 0075
St. Paul, MN 55164-0101
(651) 766-1609
smlee@landolakes.com

WEBMASTER

Letitia Yao
webmaster@mnacs.org

MINNESOTA SECTION OFFICERS

CHAIR, ACS MINNESOTA SECTION

Richard Walsh
Ecolab Research Center
655 Lone Oak Drive, ESC F6
Eagan, MN 55121
rich.walsh@ecolab.com

SECRETARY

David Rusterholz
University of Wisconsin - River Falls
410 S. Third Street
River Falls, WI 54022
d.b.rusterholz@uwrf.edu

TREASURER

Dr. Danae R. Quirk Dorr
Minnesota State University-Mankato
Trafton N347
Mankato, MN 56001
danae.quirk-dorr@mnsu.edu

Senior Chemists Meeting

Come join our ACS Senior Chemists Group on Tuesday, April 19th at 12:30 p.m. in the Dining Room at Concordia College in St. Paul Midway. Concordia College is on the southeast corner of I-94 and Hamline Avenue. Parking is usually available on Concordia Avenue, just north of the student cafeteria or in the adjacent north parking lot.

For information, call Lyle Hall at (651) 647-0611 or (651) 231-3968 or John Ring at (651) 645-4350.

ACS WEB SITES

National ACS Web Site: <http://www.chemistry.org>
Minnesota ACS Web Site: <http://www.mnacs.org>

MINNESOTA SECTION Councilor

Joann Pfeiffer (2008-2010), Century College (651) 765-2514
Lynn Hartshorn (2008-2010), University of St. Thomas (651) 962-5581
Wayne Wolsey (2006-2008), Macalester College (651) 696-6352
Sarah Mullins (2006-2008), 3M (651) 733-5372
Marilyn Duerst (2007-2009), UWRF

MINNESOTA SECTION ALTERNATE Councilor

Ramesh Kumar (2005-2007), 3M (651) 736-3181
Nicole Martens (2008-2010), 3M (651) 733-7292
Ron Fedie (2006-2008), Augsburg College (612) 330-1069
Bill Ojala (2006-2008), University of St. Thomas (651) 962-5585
Barbara Peterson (2007-2009), Ecolab (651) 306-5640

AMERICAN CHEMICAL SOCIETY

Washington, D.C. Headquarters (800) 227-5558

Cover Photo: Minnesota Local Section outstanding volunteers, including Joann Pfeiffer (top left, shown with current chair Rich Walsh), and Janet Tarino and Marilyn Duerst (bottom right).

DOES ANYONE READ THIS?

If so, please take a moment and fill in the survey on the back page of this month's edition of our humble publication.

Let your voice be heard!!

In increasingly electronic times, please weigh in on if you prefer a paper copy of *The Minnesota Chemist*, or if you would prefer an e-copy instead.

Perhaps you feel your voice may not be heard if you vote. As former secretary of this section, I can tell you that our responses on balloting items are often in the 10-15% return rate, if we are lucky. Take a moment; participate in a democratic process (it is all the rage in a presidential election year). One vote really does make a difference, especially in the MNACS! You have the option of voting with the paper ballot that is on the back page, or you can log on to our webpage at www.mnacs.org. It's your choice. We want to make sure that we are continuously improving and representing what you need and want.

Thanks in advance for your response.

—ntm

Change of Address

The mailing list for the *Minnesota Chemist* comes directly from the National ACS. It is the same list used to mail *C&E News*. If you have a change of address, please contact: Manager, Member and Subscriber Services, ACS, P.O. Box 3337, Columbus, OH 43210; telephone (800) 333-9511 or send an email to service@acs.org.

THE MINNESOTA CHEMIST is published by the Minnesota Section of the American Chemical Society monthly except June, July, August and December for a total of 8 issues per year. Business office: P.O. Box 16562, St. Paul, MN 55116. Printing: Sexton Printing, Inc., W. St. Paul. Subscription price: \$6.00 per year, included in dues paid by Minnesota Section Members. The Minnesota Section is not responsible for the opinions expressed herein. The Editorial Staff is responsible for all unsigned articles. Periodicals postage paid at St. Paul, Minnesota. Publication #32490.

ACS Minnesota Section Upcoming Events Calendar

April 21st, 2008

April monthly meeting:

Dr. Romas J. Kazlauskas, Professor,
Biochemistry, Molecular Biology and Biophysics,
University of Minnesota: Industrial
Biotechnology for Pharmaceuticals & Biofuels

In the News

UNDERGRADUATE RESEARCH SYMPOSIUM

The Minnesota ACS Section is a co-sponsor of the annual Winchell Undergraduate Research Symposium held as part of the Minnesota Academy of Science annual meeting.

The event will be held at Bethel University on April 25-26. Poster presentations will be displayed Friday evening and oral presentation will be made on Saturday morning.

For registration and fee information, consult www.mnacadsci.org.

2008 Volunteer of the Year Award Goes To

Joann Pfeiffer! After serving consecutive terms as MN Section Chair (2006-2007), Joann received several nominations for the award and was chosen the winner of the 2007 Volunteer of the Year Award. Joann was recognized and received her award at the February 19th monthly meeting at Macalester College. Thank you again Joann for all your hard work for the section, you have truly served above and beyond your call of duty!

ACS National Recognizes National Chemistry Week Coordinators

Having made the NCW program in the Minnesota Chapter "one of the most successful outreach programs conducted by the American Chemical Society" (ACS Nat'l OAC), Marilyn Duerst and Janet Tarino were recognized for their service and dedication to the NCW program with mugs, t-shirts, and special Appreciation Plaques from the ACS. Marilyn and Janet were both on hand to receive their awards at the Feb 19th monthly meeting at Macalester College. Thank you Marilyn and Janet, and congratulations!

Views expressed on this page are those of the author and not necessarily those of the Minnesota Section of the ACS.

IN THE NEWS

Minnesota Section ACS Executive Meeting Minutes, January 22, 2008, University of St. Thomas, St. Paul, MN

Members Present: Diane Arell, Milt Andrus, David Blackburn, Phil Buhlmann, Lyle Hall, Lynn Hartshorn, Ramesh Kumar, Ken Latham, Nicole Martens, Sarah Mullins, Richard Newmark, Bill Ojala, Barb Peterson, Joann Pfeiffer, Danae Quirk Dorr, John Ring, David Rusterholz, Janet Tarino, Richard Walsh, Wayne Wolsey and Letitia Yao

Richard Walsh called the meeting to order at 5:54 p.m. The minutes of the November 5, 2007 meeting were approved.

Government Affairs

Sarah Mullins reported on progress dealing with a response to the recent rulemaking by the Minnesota Board of Teaching regarding requirements for licensure of chemistry teachers at the 9-12 level. Sarah and Wayne Wolsey recently held a conference call with Prof. Joe Heppert (National ACS Society Committee on Education (SOCED)) and Ray Garant (ACS Office of Legislative and Government Affairs (OLGA)). They worked out a proposal regarding qualifications for cross-certification to teach high school chemistry. In December of 2007, the text of this proposal was circulated to members of the MNACS Executive Committee who gave agreement to advance this proposal through the ACS review process. This proposal has now been forwarded to the National SOCED committee and we are waiting for a response from them.

Sarah and Wayne also met with John Olson, an advisor on teacher licensure from the Minnesota Science Teachers Association. He was in general agreement for the need to highlight how preparation for teaching chemistry involves knowledge and skills that are not necessarily obtained through training in other sciences. He advised that our proposal is consistent with current efforts in Minnesota universities to create training programs for high school teachers seeking a cross-certification in chemistry. On January 23rd, the ACS Office of Government and Legislative Affairs (OLGA) will be launching a new website: <http://www.act4chemistry.org/> This is an interactive site with a variety of information for local section members and Government Affairs Committees (GAC) to use in their activities.

The third week in February will be "ACS Contact Congress" week. The Minnesota Section GAC would like to have a program similar to last year in which seven MNACS Section members spent an afternoon in visits at the local offices of three US Congresspersons and two US Senators. There are pressing issues to communicate to our legislators, namely the lack of an increase in funding in the 2008 appropriation for federal science agencies' R & D and educational programs. There was some discussion regarding effective methods for contacting congress people and additional topics that might be included during the visit.

Other Business

*Richard asked which councilors will be attending the next National ACS meeting in New Orleans. Sarah Mullins, Lynn Hartshorn, Wayne Wolsey and Joann Pfeiffer all indicated that they would be attending.

*2008 Chapter Goals: Richard outlined his thoughts regarding several selected goals for the MNACS Chapter for 2008. The recurring theme for his goals is professional development. His first suggestion was that our website be revamped in order to make it more informative. There is a national template for a website that we may be able to use. It was suggested that a paid webmaster be engaged in order to handle the volume of work that this would require. David Blackburn will look into a possible contact.

*Other topics that were raised included the possibility of distributing The Minnesota Chemist electronically, voting electronically in the Chapter elections, and registering and paying for meetings electronically. The pros and cons of doing these things were voiced. No conclusions were reached at this time. These issues will continue to be explored.

*Richard further discussed improving services that we can provide to MNACS members. Either via the website or through personal contact we could be helping to link members with resources, such as job hunting skills. David Blackburn will be attending the National ACS Leadership Conference in the next week and he will enquire into what resources that National provides in this regard. In connection with this effort, Richard announced that Kim McKimmy has been appointed "Professional Committee Chair". She will be coordinating our efforts to provide more professional development services.

*2007 Annual Report: Joann Pfeiffer is in the process of completing the Annual Report. She asked whether any members wanted to nominate their committee or group for a ChemLuminary Award. It was agreed that the Chemists in the Library group was deserving of an award, but it was difficult to find the appropriate category under which to nominate them.

*Response to NIST Documents: At the request of Linda Dawson (3M) we were asked to consider what role the ACS may play in determining or responding to two NIST Documents 800-53A and 800-82. These are drafts that describe standards for computer security measures that would apply in chemical manufacturing environments and would be mandatory for all federal agencies. Little information was available at the time of discussion. Diane Arell will investigate.

*Budget 2008: The spreadsheet showing the income and expenses for 2007 was examined in detail and proposed allocations for 2008 were discussed and recorded. After extensive discussion, the proposed 2008 budget was approved and adopted.

*Programming: Richard reported that interest in the Bureau of Criminal Apprehension tour was very high. Sixty people signed up for a tour that has a capacity of 30 people. He will work on scheduling a second tour to accommodate those who could not be included in the first one.

*Our volunteer recognition event will take place at the February 19th meeting.

*There will be no executive meeting in March.

The meeting was adjourned at approximately 7:22 p.m.

Respectfully submitted,
David Rusterholz, Secretary

IN THE NEWS

Minnesota Section ACS
Executive Meeting Minutes
February 19, 2008
Macalester College, St. Paul, Minnesota

Members Present: Diane Amell, George Anderson, David Blackburn, Phil Buhlmann, Marilyn Duerst, Lyle Hall, Lynn Hartshorn, Peter Howell, Jerry Kersten, Ramesh Kumar, Ken Latham, Sarah Mullins, Joann Pfeiffer, William Ojala, Danae Quirk Dorr, John Ring, David Rusterholz, Janet Tarino, Richard Walsh, Wayne Wolsey and Letitia Yao

Richard Walsh called the meeting to order at 5:30 p.m. The minutes of the January 22, 2008 meeting were approved.

Announcements

*Marilyn Duerst announced that she will be attending the National ACS meeting in New Orleans in March in her role as councilor.
*Lynn Hartshorn presented a letter received from Tom Holme, Chair of the Great Lakes Regional Meeting Steering Committee (GLRMSC). The letter explained that the GLRMSC has voted to incorporate as a non-profit corporation under the laws of the District of Columbia. For this they need the approval of the local sections within their region. Several reasons were provided within the accompanying letter, mainly aimed toward limiting the liability of individuals and local sections engaged in Great Lakes Regional ACS activities. A motion was made, seconded and passed that we approve a positive response to the plan to incorporate. The secretary will return the signed ballot to the GLRMSC.

Government Affairs:

Sarah Mullins reported on actions taken regarding the Minnesota Board of Teaching's recent rulemaking on licensure of high school teachers of chemistry. Our proposal suggesting guidelines for teacher licensure in chemistry had been forwarded to the National ACS Office of Legislative and Government Affairs (OLGA). The proposal is expected to be approved within the week. General hubbub and noises of approval ensued around the table.

Sarah asked for input as to how we want to proceed with advocacy on the proposed chemistry licensure guidelines. Mention was made of a training program already in existence at a couple of colleges in the state that provide summer courses designed to facilitate the gaining of chemistry licensure by teachers already licensed in other science areas. This program model fits well with the ACS' proposed guidelines.

Sarah also urged members to check the "act4 chemistry" website (<http://www.act4chemistry.org/>) where they can see a recent posting requesting student and scientist contributions to the "SHARP" network which is an interactive wiki that tracks the science and health policy positions of Congressmembers as well as presidential and congressional candidates.

Sarah also shared a letter that was sent recently from ACS President, Bruce E. Bursten, to several senior members of the United States Senate and the House of Representatives urging them to commit to providing funding for key programs that involve science and science education.

Sarah will be in Washington D.C. in early March to meet with US Representatives and Senators. MN ACS member visits to local district offices will likely be scheduled for the March or May congressional break.

New Business

*Rich Walsh discussed his plans to circulate a survey to all MNACS members. Possible questions and plans for distribution were discussed. Lynn Hartshorn recalled a previous survey that was done several years ago. It was generally agreed that a survey would be useful.

*Rich Walsh and David Blackburn reported on progress toward revamping the MNACS website. Although the National ACS may provide a multipage template, it was described as "cute to look at, but a pain to use". The ACS will host a webpage for us, but their software may not support all that we might want to do. The possible services provided by the company "Network Solutions" and their costs were discussed. David Blackburn's daughter's friend's dad is in Florida and currently unavailable for consultation. Members were asked to suggest different possible website functions that they might want to have and to rank their importance. Several suggestions were: a calendar function, facile two-way communication and feedback between members and the executive committee, ability to do surveys, and meeting registration and online payment options.

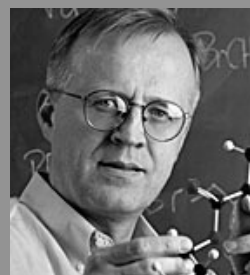
*Rich briefly reviewed the up-coming programs for the remainder of the spring.

The meeting was adjourned at 6:25 p.m.

Respectfully submitted,
David Rusterholz, Secretary

775th Meeting of the American Chemical Society Minnesota Section
Monday, April 21st, 2008
Dorsey-Ewald Conference Center, University Enterprise Labs, St. Paul

Dr. Romas J. Kazlauskas
Professor, Biochemistry, Molecular Biology and Biophysics
University of Minnesota
Industrial Biotechnology for Pharmaceuticals & Biofuels



Abstract: Biotechnology – shaping and adapting biology for humanity’s needs – has applications to medicine, agriculture and industrial processes. This lecture will focus on industrial processes where biocatalysis forms pharmaceuticals or biofuels. For pharmaceutical manufacture the main challenge is to manufacture only the desired enantiomer. Enzymes efficiently discriminate between enantiomers, so enzyme-catalyzed enantioselective reactions are good routes to pharmaceutical intermediates. These reactions simplify multi-step syntheses to reduce costs and eliminate waste. Analysis of the x-ray structures of lipases provides insight into how these enzymes distinguish enantiomers. For biofuels the main challenge is how to break down cellulosic biomass to fermentable sugars. Amylases have been engineered to efficiently break down starch from corn to glucose, but breaking down cellulose is much more difficult. First, cellulose is protected from enzymes by layers of lignin and xylans requiring additional enzymes or pretreatments. Second, the cellulose is crystalline and extracting cellulose chains from the crystals is slow. Natural ligninases and cellulases, such as those from termite bacteria, are still too slow. We are exploring unnatural enzyme catalyzed reactions, such as enzyme-catalyzed formation of peracetic acid, as faster alternatives to the breakdown of lignin to release cellulose.

Meeting Schedule:

Location: Dorsey-Ewald Conference Center, University Enterprise Labs, St. Paul, MN

Business: 5:30 pm

Dinner: 6:30 pm

Presentation: 7:30pm

Cost: \$15 ACS members / \$20 non-members payable at the door between 5:45 and 6:15pm. Cash/check will be collected.

Menu: Buffet with salad, mostaccioli con ricotta, tortellini alla panna, cannelloni rustica, Italian sausage calabrese, bread, desert, coffee and soft drinks.

Reservations: Email Richard Walsh at rich.walsh@ecolab.com or leave a detailed voice message at (651) 795-6615 by April 14, 2008.

Directions and Parking:

From the North: Either I35W south to South Hwy 280 –or– I35E south to Westbound Hwy 36 to South Hwy 280. Once on 280, south to University Ave/Territorial Rd. Exit. At the end of the exit ramp, turn right onto Territorial Rd. Proceed on Territorial to Westgate Dr. and turn right. UEL is the second building on the right (east) side of Westgate. Park in the south parking lot and enter at the south door.

From the South or West: Either I94 to Hwy 280, or I 35W north to I94 East to Hwy 280 North. Once on 280, proceed north to University Ave Exit. Proceed north on Cromwell Ave (the frontage road), across Franklin (1st light), across University (2nd light, making sure to stay to the right – left lane gets back onto 280!) to Territorial Rd and turn left onto Territorial Rd. Proceed on Territorial to Westgate Dr. and turn right. UEL is the second building on the right (east) side of Westgate. Park in the south parking lot and enter at the south door.

From the East: I94 to Hwy 280/University Ave exit. Stay to the right and exit onto Cromwell Ave. Proceed north on Cromwell Ave (the frontage road), across Franklin (1st light), across University (2nd light, making sure to stay to the right – left lane gets back onto 280!) to Territorial Rd and turn left onto Territorial Rd. Proceed on Territorial to Westgate Dr. and turn right. UEL is the second building on the right (east) side of Westgate. Park in the south parking lot and enter at the south door.

To better gauge the needs of the local section, the Minnesota Section Executive Committee is seeking your input. Please complete the following survey and return by 5:00 pm April 18th. If you would like to mail the survey, please send to Richard Walsh, 558 McKinley St., Anoka, MN 55303; you may also submit the survey electronically by downloading at www.mnacs.org and emailing the completed survey to rich.walsh@ecolab.com. Thank you in advance for your time!

Click in the box to indicate your response

1. In what format would you prefer to receive the MN Chemist: print, electronic, or both?

<input type="checkbox"/>	Print
<input type="checkbox"/>	Electronic
<input type="checkbox"/>	Both

2. How often do you visit the mnacs.org website?

<input type="checkbox"/>	Daily
<input type="checkbox"/>	Weekly
<input type="checkbox"/>	Monthly
<input type="checkbox"/>	Rarely

3. Do you currently volunteer for the local section?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

4. Do you attend section meetings on a regular basis?

<input type="checkbox"/>	Yes
<input type="checkbox"/>	No

If "No", please comment on the reason(s)
(Click in the box to type)

5. In what areas would you like the local section to expand its offerings? Choose all that apply.

<input type="checkbox"/>	Presentations on job-hunting/interviewing skills
<input type="checkbox"/>	Networking Events
<input type="checkbox"/>	Professional Development, e.g. web-based resources, links to national ACS resources, skills cataloging, etc.
<input type="checkbox"/>	Technical Talks
<input type="checkbox"/>	Non-Technical Talks
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Other:

6. We welcome any other comments you feel would assist us in programming for the local section
(Click in the box to type)

--

The Minnesota Chemist



OFFICIAL PUBLICATION OF THE MINNESOTA SECTION
OF THE AMERICAN CHEMICAL SOCIETY

P.O. Box 16562
ST. PAUL, MN 55116

Periodicals Postage Paid
St. Paul, MN