



The Minnesota Chemist

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Issue 1, Jan - Feb 2016



Greetings from the Chair

Happy New Year!!

Winter has arrived, a new year starts and it is a new start for a new chair. Working with the Executive Committee, I believe we have put together an interesting series of meetings. The first half of the year is looking like this:

January 19th is biomaterials based with Bill Coggio of BioAmber.

February - we'll hear about medicinal marijuana work being done at LeafLine Labs.

March - the Minnesota Technical Symposium, which will be at 3M this year. Stefan Lindvall (CRO, Multi-Tech Systems, Inc.) will present "The Internet of Things." The evening's second speaker has not yet been announced.

April - Rod Williams (Tundra Companies) will tell us about their innovative approach to composite materials.

Details for May (Awards Dinner) and the June Social gatherings will be sent/posted as they are finalized.

I have already started work on the fall program and would appreciate your input! If there is a topic/speaker to hear, please let me know.

[Russ Pytkki](#)

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2016 MN ACS Officer Election Results

128 ballots were received in the mail this year and the results are...

Chair Elect: Nick Schlotter

Councilor: Marilyn Duerst

Secretary: Natalie Olvera

Nominations Committee:

Paul Boswell – U of M

Adam Miller – Industry

James Wollack – Small College



January 19th Meeting

Succinic Acid: A Bio-Based Building Block for Succinate Polyester Polyols in Modified Thermoplastic Urethanes using a Urethane Pre-polymer Process

William D. Coggio, Ph.D., BioAmber Inc., Plymouth, MN USA

Abstract

Bio-based Succinic Acid (Bio-based SA) has emerged as one of the most competitive of the new bio-based chemicals. BioAmber's highly efficient yeast based fermentation process produces a high quality polymerization grade succinic acid ($C_4H_6O_4$) and does so in an efficient process that reduces the CO_2 emissions and saves energy. As a platform chemical, BioAmber's bio-based succinic acid can react with glycols to make succinate polyester polyols (SA-PEPs) useful in polyurethane (PU) chemistry. These polyols are comparable to adipic acid based polyester polyols (AA-PEPs) however, polyester based polyurethanes made using succinate polyester polyols tend to exhibit excellent strength and elongation profiles along with excellent solvent resistance compared to adipates and can generate PU with greater than 60% renewable carbon. In this study, we will present recent findings comparing polyurethanes made with different SA polyesters polyols and will describe the impact of the SA-PEP composition on viscosity, hydrolysis rate and TPU end physical properties. We will conclude by discussing how these properties can influence the performance window of these urethanes in elastomer applications. Bio-based SA and SA-PEPs provides formulation flexibility to polyurethanes and can enable thermoplastic urethane with differentiated properties *and* renewable carbon content, thus enabling a valuable tool for bringing sustainability and performance to the PU tool box.

Bio

Dr. William (Bill) D. Coggio is the Global Applications and Technology Support Manager for BioAmber. He earned his Ph.D. in chemistry from The Pennsylvania State University under the direction of Prof. Harry Allcock. Previously he was the Global Applications Development Lead for Silicone Elastomers with Cabot Corporation and was a Senior Research Scientist for 21 years with 3M Company in St. Paul, MN. He holds more than 25 issued US patents, has 12 peer reviewed journal publications and has given numerous professional seminars and lecturers.

BioAmber is a sustainable chemicals company that has a proprietary biotechnology technology platform to convert renewable feedstocks into renewable chemicals for use in a wide variety of everyday products including plastics, resins, food additives and personal care products. BioAmber is a leading producer of Bio-based succinic acid with headquarters in

Montreal Canada, a RD Center in Plymouth, MN and production facility in Sarnia, Ontario. See www.bio-amber.com for more information.

Schedule:

5 – 6 pm: Executive meeting

6 – 7 pm: Dinner

7 – 8 pm: Presentation

Cost:

\$15 in advance, \$18 at the door, Students \$5

Location:

Rojo Mexican Grill

1602 West End Boulevard, St. Louis Park, MN 55416



ACS Senior Chemists Lunch Meeting on January 13th

Lynn Hartshorn

Please mark your calendar for the next lunch meeting of the ACS Seniors. It will take place on Wednesday, January 13th at 11:30 am at the Green Mill Restaurant on Hamline and Grand Avenue in St. Paul. We will order from the menu. All seniors, guests and others are welcome. You don't have to be retired! Our short (20 minute) talk will be given by Barbara Barany, She will talk about Blue LEDS (the developers of blue LEDs were awarded the 2014 Nobel Prize in Physics).

Please reserve with Lynn Hartshorn (lghartshorn@stthomas.edu) by Monday, January 11th. I hope that everyone has an enjoyable Holiday season! See you in January.



Thank you for our 2015 MN-ACS career fair sponsors.

The 100+ attendees at this year's event thank you for your support.



VERUM Staffing, LLC is a Twin Cities based staffing agency specializing in contract, contract to hire and direct placement of Scientific and Engineering individuals. We're a collaborative and personal boutique committed to meeting the needs of our clients, candidates and employees equally without exploiting one group to benefit the others. We use our networks, industry experience, and ethical commitments to create a true partnership of competence in which all parties prosper.



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long-term development—even in today's challenging economic environment.



Tru Vue is a manufacturer of high performance glazing products for the custom picture framing, museum and engineered optics markets. Tru Vue is a leader in anti-reflective coatings, as well as conservation-grade UV protection and specialty glazing products for these markets. The company is located in McCook, Illinois, and Faribault, Minnesota, and is a subsidiary of Apogee Enterprises, Inc.



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Winchell Undergraduate Science Research Symposium

Wayne C. Wolsey (wolsey@macalester.edu), MN-ACS---MAS Liaison

The annual Winchell Undergraduate Science Research Symposium, part of the Annual Meeting of the Minnesota Academy of Science, will be held on Friday, April 29, 2016 at the University of Minnesota—East Bank campus. The Minnesota ACS Section, a co-sponsor, budgets funds each year to cover the registration fees for undergraduate chemistry or biochemistry students of oral or poster presentations—up to a limit of seven presenters from any higher education institution. Complete information regarding the event and registration can be found at: <http://mnmas.org/annual-meeting/registration>



Call for Nominations – 2016 Minnesota Section High School Chemistry Teaching Award

In 2016 the section will recognize an outstanding high school chemistry teacher with the Award for Excellence in High School Chemistry Teaching. The most recent awards, in 1995, 1998, 2001, 2004, 2007, 2010 and 2013 were given to Rena Benedict of Forest Lake, Marcy Copeland of Granite Falls, Patricia Richards of Como Park High School, Michael Minnema of North Community HS, Becky Keller of Highland Park HS, St. Paul, Jamie Crannell of Chaska HS, Jennifer Steiger of Mahtomedi HS, Janice Gepner of St. Paul Academy and Ian Bronson of North High School.

The nominee must be engaged in the teaching of chemistry of high school (grades 9-12). The nomination must include a biographical sketch, a list of publications (if any) and a statement of and evaluation of the nominee's achievements as a high school chemistry teacher. The nomination should clearly demonstrate the following attributes: (1) the quality of the candidate's teaching including effective methods of presentation; (2) the ability to challenge and inspire students; (3) extracurricular work in chemistry including science fairs, science clubs, and

activities that stimulate the interest of young people in chemistry and related sciences; and (4) willingness to keep up-to-date in chemistry.

The nominating packet may include up to four supporting letters from supervisors, associates, MN section members, or former students who have graduated from high school.

The award consists of a plaque and cash award of \$500 which will be presented at the May 2016 meeting of the section.

The nomination procedure is simple - submit the nominating letter and all supporting information to the chair of the Awards Committee. Paper copies cannot be accepted. The deadline for completed nomination packets is February 16, 2016; send them to Ramesh Kumar (rckumar0051@mmm.com).

Call for Nominations – 2016 The Lyle Hall Senior Chemist Award

The Lyle Hall Senior Chemist Award is based upon post-retirement professional activities of a member of the Minnesota ACS Section who has entered into formal retirement from his/her primary job. Professional activities can include volunteer ACS service, volunteer activities in any other scientific organization such as the Minnesota Academy of Science (i.e. Science Fair Judging), professional writing, consulting, and/or research. Nominations (including no more than 2 seconding letters) should be sent to Ramesh C. Kumar (rckumar0051@mmm.com). A CV is useful. The Awards Committee may also select an award recipient, based upon their collective knowledge of the activities of an individual. The deadline for completed nomination is Feb. 16, 2016.

Call for Nominations – 2016 Janet Tarino Volunteer Award

The Janet Tarino Volunteer Award will be given to an individual for outstanding volunteer service to Minnesota ACS, and/or chemistry related projects and events not directly connected to Minnesota ACS. This person will have demonstrated an exceptional passion for and commitment to community outreach, and dedication to projecting a positive image of chemists.

Nominating documents should include curriculum vitae and examples of volunteer service. The award consists of a plaque which will be presented at the May 2016 meeting of the section.

Nominations should be submitted electronically to the Chair of MN ACS Awards Committee, Ramesh C. Kumar (rckumar0051@mmm.com) before or on Feb. 16, 2016.



Applications Engineer Position

Activated Research Company (ARC): Catalyzing the Future™

Job Description

As a new company, we are seeking a qualified individual to focus on our first offering: the Polyarc™ reactor. The Polyarc™ reactor is a two-step chemical reactor, which uses a catalyst

to convert all organic chemicals to methane. It is placed in a gas chromatograph (GC) after the chromatography column and before the flame ionization detector (FID). In this way, every chemical entering the FID has been converted to methane, and as a result has the same detector response.

Specific Job Responsibilities

The Polyarc™ Applications Engineer will report directly to ARC's marketing and technical sales lead, and will grow the sales pipeline for the Polyarc™ technology. Primary responsibilities of this job include direct contact with existing leads, creation of and contact with new leads, contribution to ARC's overall marketing and sales plan, forecasting future demand, all based upon understanding the production, manufacturing, and operation of the Polyarc™ reactor. We're searching for an individual who understands and values customer relationships, and is passionate about developing lasting ones.

Background Requirements

Ideally applicants will have a degree in Chemical Engineering or a related field, and a passion of working with customers to help solve their problems. The job may then evolve from a focus on technical sales into additional opportunities such as engineering and/or project management. Activated Research Company will consider for employment only those candidates who are currently U.S. citizens.

Compensation

ARC is prepared to offer a competitive pay level in association with a potential equity position in the company.

Contact Information

If you fit the above requirements, please contact ARC at HR@activatedresearch.com

If you have content for The Minnesota Chemist, please send it to Becky Guza, Editor (becky.guza@hbfuller.com)

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