



116th Annual Convention

to be held at the Eaglewood Resort & Spa 1401 Nordic Road Itasca, IL 60143

DATE CHANGE: June 21-24, 2022

For more information go to: leatherchemists.org/ annual_convention.asp November 2021

Vol. CXVI, No.11

JALCA 116(11), 377-416, 2021

Contents

Changes to the Collagen Structure using Vibrational Spectroscopy
and Chemometrics: A Comparison between Chemical and Sulfide-Free
Leather Process

by Megha Mehta, Yang Liu, Rafea Naffa, Mark Waterland	
and Geoff Holmes	379

Evaluation of Antifungal Activity of Carbonate Solvent - Part:1

by M. Sathish, D. Seeniammal, R. Poornima and J. Raghava Rao......390

${\bf Biosorption\ of\ Chromium\ from\ Spent\ Semi-Chrome\ Liquor:}$

Part 1 Effective Pollution Abatement using Bacillus cerus

Typical Defects of Natural Phospholipid Fatliquors in Leather Industry and Their Solutions

by Zhikun Chen, Tao Luo, Xu Zhang, Biyu Peng, and Chunxiao Zhang 401

ACLA News

Statement of Ownership, Management and Circulation 413–414

Distributed by



An imprint of the University of Cincinnati Press

ISSN: 0002-9726

Communications for Journal Publication

Manuscripts, Technical Notes and Trade News Releases should contact:

MR. STEVEN D. LANGE, Journal Editor, 1314 50th Street, Suite 103, Lubbock, TX 79412, USA
E-mail: jalcaeditor@gmail.com

Mobile phone: (814) 414-5689

Contributors should consult the Journal Publication Policy at: http://www.leatherchemists.org/journal_publication_policy.asp



Making leather on time, on spec and within budget requires a careful balance of chemistry and process. Buckman enables tanneries to master that balance with our comprehensive Beamhouse & Tanyard Systems. They include advanced chemistries that not only protect the hide but also maximize the effectiveness of each process, level out the differences in raw materials and reduce variations in batch processing. The result is cleaner, flatter pelts. More uniform characteristics. And improved area yield.

In addition, we offer unsurpassed expertise and technical support to help solve processing problems and reduce environmental impact with chemistries that penetrate faster, save processing time, improve effluent and enhance safety.

With Buckman Beamhouse & Tanyard Systems, tanneries can get more consistent quality and more consistent savings. Maintain the perfect balance. Connect with a Buckman representative or visit us at **Buckman.com**.

1945 Buckman75

JOURNAL OF THE

AMERICAN LEATHER CHEMISTS ASSOCIATION

Proceedings, Reports, Notices, and News of the AMERICAN LEATHER CHEMISTS ASSOCIATION

OFFICERS

MIKE BLEY, President Eagle Ottawa – Lear 2930 Auburn Road Rochester Hills, MI 48309 JOSEPH HOEFLER, Vice-President
The Dow Chemical Company
400 Arcola Rd.
Collegeville, PA 19426

COUNCILORS

Shawn Brown Quaker Color 201 S. Hellertown Ave. Quakertown, PA 18951

Jose Luis Gallegos Elementis LTP 546 S. Water St. Milwaukee, WI 53204 Steve Lange Leather Research Laboratory University of Cincinnati 5997 Center Hill Ave., Bldg. C Cincinnati, OH 45224

LeRoy Lehman LANXESS Corporation 9501 Tallwood Dr. Indian Trail, NC 28079 John Rodden Union Specialties, Inc. 3 Malcolm Hoyt Dr. Newburyport, MA 01950

Marcelo Fraga de Sousa Buckman North America 1256 N. McLean Blvd. Memphis, TN 38108

EDITORIAL BOARD

Dr. Meral Birbir Biology Department Faculty of Arts and Sciences Marmara University Istanbul, Turkey

> Chris Black Consultant St. Joseph, Missouri

Dr. Eleanor M. Brown
Eastern Regional
Research Center
U.S. Department of Agriculture
Wyndmoor, Pennsylvania

Dr. Anton Ela'mma Retired Perkiomenville, Pennsylvania

Cietta Fambrough Leather Research Laboratory University of Cincinnati Cincinnati, Ohio

Mainul Haque ALCA Education Committee Chairman Rochester Hills, Michigan Joseph Hoefler Dow Chemical Company Collegeville, Pennsylvania

Elton Hurlow Buckman International Memphis, Tennessee

Prasad V. Inaganti Wickett and Craig of America Curwensville, Pennsylvania

Dr. Tariq M. Khan Research Fellow, Machine Learning Faculty of Sci Eng & Built Env School of Info Technology Geelong Waurn Ponds Campus Victoria, Australia

Nick Latona Eastern Regional Research Center U.S. Department of Agriculture Wyndmoor, Pennsylvania

Dr. Xue-pin Liao National Engineering Centre for Clean Technology of Leather Manufacture Sichuan University Chengdu, China Dr. Cheng-Kung Liu Eastern Regional Research Center U.S. Department of Agriculture Wyndmoor, Pennsylvania

Dr. Rafea Naffa New Zealand Leather & Shoe Research Association Inc. (LASRA*) Palmerston North, New Zealand

> Edwin Nungesser Dow Chemical Company Collegeville, Pennsylvania

Dr. Benson Ongarora Department of Chemistry Dedan Kimathi University of Technology Nyeri, Kenya

> Lucas Paddock Chemtan Company, Inc. Exeter, New Hampshire

Dr. J. Raghava Rao Central Leather Research Institute Chennai, India Andreas W. Rhein Tyson Foods, Inc. Dakota Dunes, South Dakota

Dr. Majher Sarker Eastern Regional Research Center U.S. Department of Agriculture Wyndmoor, Pennsylvania

Dr. Bi Shi National Engineering Laboratory Sichuan University Chengdu, China

Dr. Palanisamy Thanikaivelan Central Leather Research Institute Chennai, India

> Dr. Xiang Zhang Genomics, Epigenomics and Sequencing Core University of Cincinnati Cincinnati, Ohio

Dr. Luis A. Zugno Buckman International Memphis, Tennessee

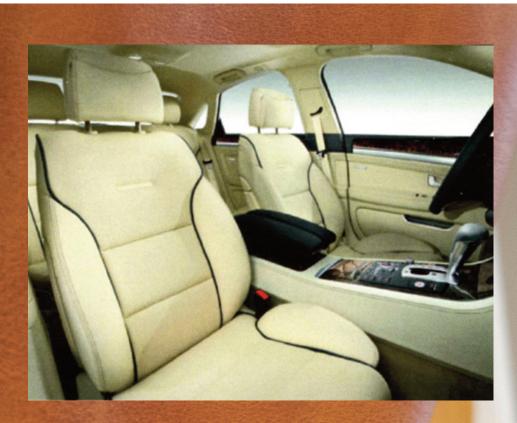
PAST PRESIDENTS

G. A. Kerr, W. H. Teas, H. C. Reed, J. H. Yocum, F. H. Small, H. T. Wilson, J. H. Russell, F. P. Veitch, W. K. Alsop, L. E. Levi, C. R. Oberfell, R. W. Griffith, C. C. Smoot, III, J. S. Rogers, Lloyd Balderson, J. A. Wilson, R. W. Frey, G. D. McLaughlin, Fred O'Flaherty, A. C. Orthmann, H. B. Merrill, V. J. Mlejnek, J. H. Highberger, Dean Williams, T. F. Oberlander, A. H. Winheim, R. M. Koppenhoefer, H. G. Turley, E. S. Flinn, E. B. Thorstensen, M. Maeser, R. G. Henrich, R. Stubbings, D. Meo, Jr., R. M. Lollar, B. A. Grota, M. H. Battles, J. Naghski, T. C. Thorstensen, J. J. Tancous, W. E. Dooley, J. M. Constantin, L. K. Barber, J. J. Tancous, W. C. Prentiss, S. H. Feairheller, M. Siegler, F. H. Rutland, D.G. Bailey, R. A. Launder, B. D. Miller, G. W. Hanson, D. G. Morrison, R. F. White, E. L. Hurlow, M. M. Taylor, J. F. Levy, D. T. Didato, R. Hammond, D. G. Morrison, W. N. Mullinix, D. C. Shelly, W. N. Marmer, S. S. Yanek, D. LeBlanc, C.G. Keyser, A.W. Rhein, S. Gilberg, S. Lange, S. Drayna, D. Peters

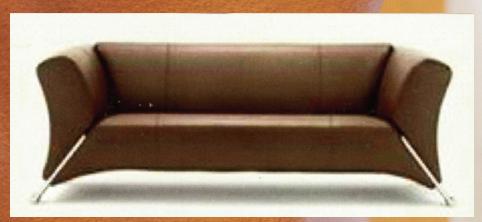
THE JOURNAL OF THE AMERICAN LEATHER CHEMISTS ASSOCIATION (USPS #019-334) is published monthly by The American Leather Chemists Association, 1314 50th Street, Suite 103, Lubbock, Texas 79412. Telephone (806)744-1798 Fax (806)744-1785. Single copy price: \$8.50 members, \$17.00 non-member. Subscriptions: \$185 for hard copy plus postage and handling of \$60 for domestic subscribers and \$70 for foreign subscribers; \$185 for ezine only; and \$205 for hard copy and ezine plus postage and handling of \$60 for domestic subscribers and \$70 for foreign subscribers.

Periodical Postage paid at Lubbock, Texas and additional mailing offices. Postmaster send change of addresses to The American Leather Chemists Association, 1314 50th Street, Suite 103, Lubbock, Texas 79412.

AVELLISYNCO



Selected Dyestuffs



ACHEMTAN

17 Noble Farm Drive • Lee, NH 03861 (Office)
57 Hampton Road • Exeter, NH 03833 (Manufacturing)
Tel: (603) 772-3741 • Fax: (603) 772-0796
www.CHEMTAN.com



With the rise of both electric and self-driving, cars are becoming quieter and anti-squeak and rattle materials are becoming increasingly important. At the same time, improved anti-stain performance is required, because of the current trend for pale-colored car seats. Therefore, we have developed Stay Clean. This low-VOC coating technology protects pale-colored leather and vinyl surfaces against common stains, such as dye from jeans, spilled coffee and dirt. Our solution also makes surfaces low-squeak, which is a great asset as global research has shown that a squeaking car interior is one of the biggest annoyances among car owners. Another trend in car interior is the popularity of matt surfaces. Therefore, we have developed PolyMatte®. This non-squeaking solution provides a luxurious feel to the finished article in combination with flexibility and scratch and abrasion resistance. Our portfolio contains many products, varying from beamhouse products, tanning systems to finishes,

duller concentrates, crosslinkers and thickeners to leveling agents, defoamers, colorants and hand modifiers. Our most sustainable option is Green PolyMatte®, which is based on rapeseed oil (20%) instead of crude oil-derived intermediates. If you would like to know what our Stahl solutions for automotive can do for your business, please visit www.stahl.com or contact us at: alexander.campbell@us.stahl.com.

If it can be imagined, it can be created





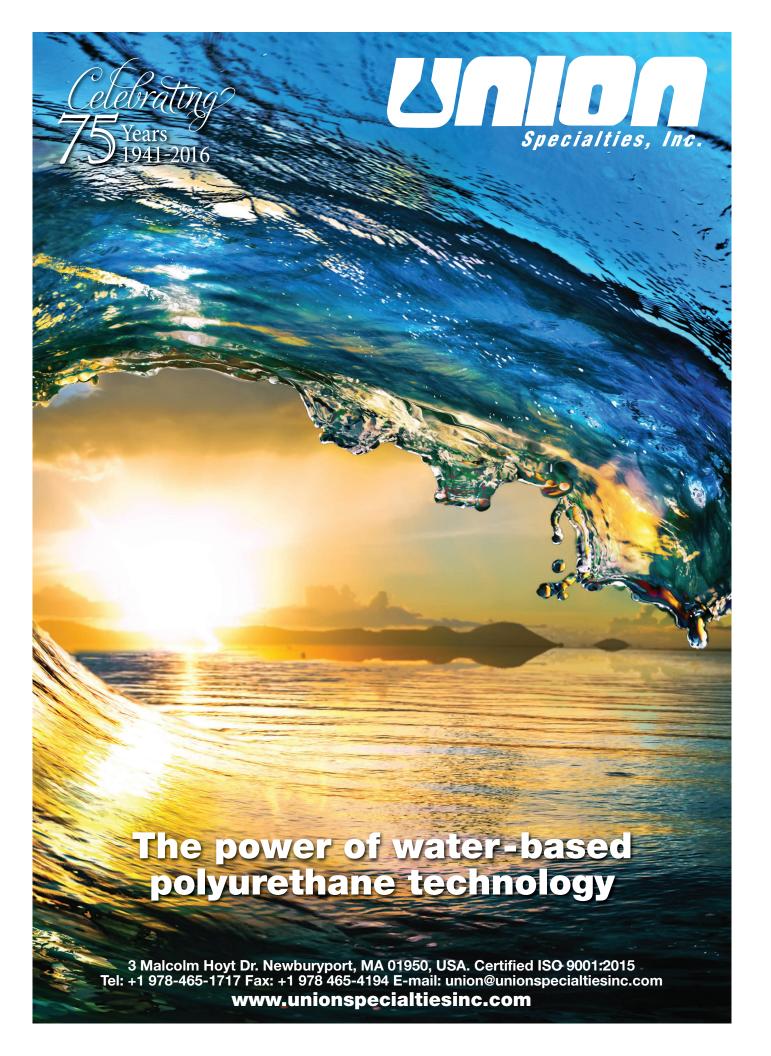


Low-VOC



PolyMatte®





POSTAL SERVICE (All Periodicals F	2. Publication Number	3. Filing Date
The Journal of The Ameican Leather Chemists Association	019334 _	09/23/2021
4. Issue Frequency	5. Number of Issues Published Annually	6. Annual Subscription Price
monthly	12	\$185
 Complete Mailing Address of Known Office of Publication (Not printer) (- 1314 50th Street, Suite 103, Lubbock, Lubbock County, Texas 79 	Contact Person Carol Adcock	
	Telephone (Include area code, (806) 744-1798	
8. Complete Mailing Address of Headquarters or General Business Office same as Item 7	of Publisher <i>(Not printer)</i>	
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and N	Managing Editor (Do not leave blank)	
Publisher (Name and complete mailing address)		
Carol Adcock, ALCA Executive Secretary, 1314 50th Street, Suite	e 103, Lubbock, TX 79412-2940	
Editor (Name and complete mailing address) Steven D. Lange, ALCA Editor, 1314 50th Street, Suite 103, Lubb	bock, TX 79412-2940	
Managing Editor (Name and complete mailing address) none		
names and addresses of all stockholders owning or holding 1 percent of	or more of the total amount of stock. If not owne	ed by a corporation, give the
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.)	ed by a corporation, give the
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga	or more of the total amount of stock. If not ownering or other unincorporated firm, give its name of	ed by a corporation, give the
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.)	ed by a corporation, give the and address as well as those of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga Full Name	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address	ed by a corporation, give the and address as well as those of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga Full Name	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address	ed by a corporation, give the and address as well as those of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga Full Name	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address	ed by a corporation, give the and address as well as those of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga Full Name	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address	ed by a corporation, give the and address as well as those of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga- Full Name The American Leather Chemists Association	or more of the total amount of stock. If not owner nip or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address 1314 50th Street, Suite 103, Lubbool	ed by a corporation, give the and address as well as those of state of the state of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga. Full Name The American Leather Chemists Association 11. Known Bondholders, Mortgagees, and Other Security Holders Owning Other Securities. If none, check box	or more of the total amount of stock. If not owner in or other unincorporated firm, give its name in anization, give its name and address.) Complete Mailing Address 1314 50th Street, Suite 103, Lubbook or Holding 1 Percent or More of Total Amount	ed by a corporation, give the and address as well as those of state of the state of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga. Full Name The American Leather Chemists Association 11. Known Bondholders, Mortgagees, and Other Security Holders Owning Other Securities. If none, check box	or more of the total amount of stock. If not owner in or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address 1314 50th Street, Suite 103, Lubbool or Holding 1 Percent or More of Total Amount	ed by a corporation, give the and address as well as those of state of the state of
names and addresses of all stockholders owning or holding 1 percent of names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga. Full Name The American Leather Chemists Association 11. Known Bondholders, Mortgagees, and Other Security Holders Owning Other Securities. If none, check box	or more of the total amount of stock. If not owner in or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address 1314 50th Street, Suite 103, Lubbool or Holding 1 Percent or More of Total Amount	ed by a corporation, give the and address as well as those of state of the state of
names and addresses of the individual owners. If owned by a partnersh each individual owner. If the publication is published by a nonprofit orga. Full Name The American Leather Chemists Association 11. Known Bondholders, Mortgagees, and Other Security Holders Owning	or more of the total amount of stock. If not owner in or other unincorporated firm, give its name anization, give its name and address.) Complete Mailing Address 1314 50th Street, Suite 103, Lubbool or Holding 1 Percent or More of Total Amount	ed by a corporation, give the and address as well as those of state of the state of

Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)
PS Form **3526**, July 2014 [Page 1 of 4 (see instructions page 4)] PSN: 7530-01-000-9931 PRIVACY NOTICE: So

✓ Has Not Changed During Preceding 12 Months

12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)

The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:

PRIVACY NOTICE: See our privacy policy on www.usps.com.

13. Publication Tit The Journal of		American Leather Chemists Association	14. Issue Date for Circulation Data Below 09/01/2021		
15. Extent and Na	ature	of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published	
a. Total Numb	er of	Copies (Net press run)			
	(1)	Mailed Outside-County Paid Subscriptions Stated on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies)	49	46	
b. Paid Circulation (By Mail and	(2)	Mailed In-County Paid Subscriptions Stated on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies)	0	0	
Outside the Mail)	(3)	Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS®	0	0	
	(4)	Paid Distribution by Other Classes of Mail Through the USPS (e.g., First-Class Mail®)	58	55	
c. Total Paid [c. Total Paid Distribution [Sum of 15b (1), (2), (3), and (4)]		107	101	
d. Free or Nominal	(1)	Free or Nominal Rate Outside-County Copies included on PS Form 3541	0	0	
Rate Distribution (By Mail	(2)	Free or Nominal Rate In-County Copies Included on PS Form 3541	0	0	
and Outside the Mail)	(3)	Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g., First-Class Mail)	0	0	
	(4)	Free or Nominal Rate Distribution Outside the Mail (Carriers or other means)	0	0	
e. Total Free o	or No	minal Rate Distribution (Sum of 15d (1), (2), (3) and (4))	0	0	
f. Total Distrib	utior	(Sum of 15c and 15e)	107	101	
g. Copies not	Distri	buted (See Instructions to Publishers #4 (page #3))	41	41	
h. Total (Sum	of 15	if and g)	148	142	
i. Percent Pai (15c divided		15f times 100)	100	100	
* If you are claimin	g ele	ectronic copies, go to line 16 on page 3. If you are not claiming electronic copies, sk	ip to line 17 on page 3.		
6. Electronic Cop	oy Ci	rculation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date	
a. Paid Electr	onic	Copies			
b. Total Paid	Print	Copies (Line 15c) + Paid Electronic Copies (Line 16a)	0	0	
c. Total Print	Distr	ibution (Line 15f) + Paid Electronic Copies (Line 16a)	0	0	
d. Percent Pa	id (B	oth Print & Electronic Copies) (16b divided by 16c × 100)			
I certify the	at 50	% of all my distributed copies (electronic and print) are paid above a nominal	price.		
7. Publication of	State	ement of Ownership			
If the public		n is a general publication, publication of this statement is required. Will be printed issue of this publication.	Publica	tion not required.	
		of Editor, Publisher, Business Manager, or Owner	Dat	e	
(1	arce acce, Executive Secretary	12	09/23/2021	

certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form r who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions ncluding civil penalties).



COLD Milling



Smooth Leather Milling





116th ALCA ANNUAL CONVENTION Change of Date: June 21–24, 2022 Eaglewood Resort & Spa Itasca, IL

Featuring the 61st John Arthur Wilson Memorial Lecture
By Randy Johnson, President and CEO
of GST AutoLeather
Title: Road Ahead

Tentative Schedule

Tuesday, June 21
Golf Tournament, Opening Reception and Dinner

Wednesday, June 22
John Arthur Wilson Memorial Lecture
All Day Technical Sessions, Fun Run
Reception and Dinner, Activities - Bowling, Pool,
Darts and an Open Bar

Thursday, June 23
All Day Technical Sessions, Annual Business Meeting
Activities Awards Luncheon
Social Hour, ALCA Awards Banquet

Visit us at www.leatherchemists.org for full details under Annual Convention as they become available

www.CHEMTAN.com

Made with WATERPROOF TECHNOLOGY

ACHEMTAN

Tel: (603) 772-3741 • Fax: (603) 772-0796 • www.CHEMTAN.com