

THE

Journal

OF THE AMERICAN
LEATHER CHEMISTS ASSOCIATION

August 2023

Vol. CXVIII, No.8

JALCA 118(8), 313–356, 2023



118th Annual Convention

May 21–23, 2024

Hershey Lodge

325 University Drive

Hershey, PA 17033

For more information go to:

[leatherchemists.org/
annual_convention.asp](http://leatherchemists.org/annual_convention.asp)

Contents

Study on the Pyrolysis Kinetic Behaviors of Different Vegetable-Tanned Sheepskin Leathers

by Chaoya Ren, Yadi Hu, Jie Liu, Fang Wang, Yong Lei,
Mădălina Georgiana Albu Kaya and Keyong Tang 315

Bacterial and Fungal Damage in Leather

by Joseph Ondari Nyakundi 327

Impact of Flax Seed Protein and Beeswax Emulsion Blend on Leather Finishing— A Novel Eco-Benign Formulation

by Bindia Sahu, Janani V, Renganath Rao R, Akash Bhalla and
Mohammed Abu Javid. 340

An Effective Way to Prepare High Performance Biomass-Based Fatliquoring Agent: Bromination Modification of Rapeseed Oil and Its Fatliquoring and Flame-Retardant Properties

by Tao Luo, Xu Zhang, Biyu Peng, Chunxiao Zhang and
Sadaqat Ali Chattha 346

Lifelines 359

Letter to the Editor. 360

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, c/o University of Cincinnati, 5997 Center Hill Ave.,
Bldg. C, Cincinnati, OH 45224, 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

SPONSORS FOR THE 117th ANNUAL MEETING

ADMIRAL —\$4,500

North American Minerals Corporation

ELITE —\$4,000

TFL USA/Canada, Inc.

PLATINUM — \$3,500

Erretre SpA
Stahl USA

DIAMOND —\$2,500

Buckman
Pangea Made, Inc.

GOLD LEVEL — \$1,750

American Chrome & Chemicals LTP Inc.
Dow Coating Materials
Tannin Corporation

SILVER LEVEL — \$1500

Atlas Refinery Inc.
D. R. Diedrich and Co.
Hermann Oak Leather Co.
JBS USA

NTE Company (Pty) Ltd
Quaker Color
Tyson Foods, Inc.

BRONZE LEVEL — \$1000

Chemtan Company
Cromogenia Units
Curfimex SA de CV
Leather Miracles
SB Foot Co./Red Wing Shoe Co.
Twin City Hides
Union Specialties Inc.
Wickett & Craig of America

JOURNAL OF THE AMERICAN LEATHER CHEMISTS ASSOCIATION

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

OFFICERS

JOSEPH HOEFLER, *President*
3213 Rockhill Rd.
Perkiomenville, PA 18074

John Rodden, *Vice-President*
Union Specialties, Inc.
3 Malcolm Hoyt Dr.
Newburyport, MA 01950

COUNCILORS

Goetz Hagen
Tannin Corporation
65 Walnut Street
Peabody, MA 01960

LeRoy Lehman
TFL USA/Canada Inc.
636 Fisher Field Rd.
Blairsville, GA 30512

Todd Salzman
Hermann Oak Leather Co.
4050 North First Street
St. Louis, MO 63147

Myron Hooks
The Dow Chemical Company
400 Arcola Rd.
Collegeville, PA 19426

Roger A. Pinto
Pangea Made, Inc.
2920 Waterview Dr.
Rochester Hills, MI 48309

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

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
Retired
Memphis, Tennessee

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

Dr. Song Jiang
Principal Biomedical Scientist
Huzhou Institute of Biological
Products Co., Ltd.
Zhejiang, China

Dr. Tariq M. Khan
Research Fellow, Machine Learning
Faculty of Sci Eng & Built Env
School of Info Technology
Geelong Waurm 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
Research Leader (Ret.)
Eastern Regional Research Center
U.S. Department of Agriculture
Wyndmoor, Pennsylvania

Dr. Rafea Naffa
Innovation Services, CS&I
Fonterra Research and
Development Centre
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

Roger A. Pinto
Director of Sustainability & Innovation
Product Development
Pangea
Rochester Hills, Michigan

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. TANCIOUS, W. E. DOOLEY, J. M. CONSTANTIN, L. K. BARBER, J. J. TANCIOUS, 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, M. BLEY

THE JOURNAL OF THE AMERICAN LEATHER CHEMISTS ASSOCIATION (USPS #019-334) is published monthly by The American Leather Chemists Association, c/o University of Cincinnati, 5997 Center Hill Ave., Bldg. C, Cincinnati, Ohio 45224. Telephone (513)290-2507. Single copy price: \$10.00 members, \$20.00 non-member plus shipping and handling. Subscriptions: \$185 for hard copy plus postage and handling of \$60 for domestic subscribers and \$70 for foreign subscribers; \$220 for ezine only; and \$240 for hard copy and ezine plus postage and handling of \$60 for domestic subscribers and \$70 for foreign subscribers.

Periodical Postage paid at Cincinnati, Ohio and additional mailing offices. Postmaster send change of addresses to The American Leather Chemists Association, c/o University of Cincinnati, 5997 Center Hill Ave., Bldg. C, Cincinnati, Ohio 45224.



C O L D M i l l i n g



Smooth Leather
Milling



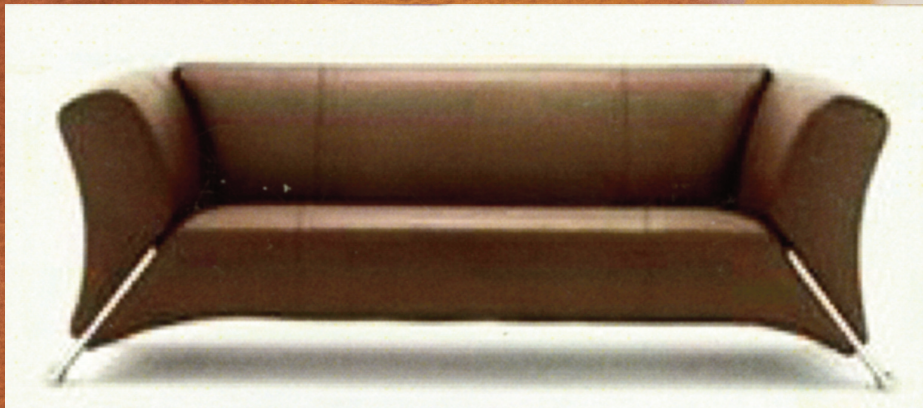
Erretre s.p.a. | Via Ferraretta, 1 | Arzignano (VI) 36071 | tel. +39 0444 478312 | info@erretre.com

LEATHER

AVELLISYNCO



Selected Dyestuffs



 **CHEMTAN**

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

**REAL
LEATHER.
STAY
DIFFERENT.**

WARDROBE MALFUNCTION

LEATHER. IF WE DON'T USE IT, WE DO MORE THAN JUST LOSE IT.

From food to fashion, a burger and shake is just the start of the story of waste and recklessness. We live in a world where the cheap and easy option is to throw away the byproducts of our society. Instead we crop new land, drill or frack for short lived replacements. Isn't it time to shake things up, to think slow instead of fast. To think of our future and that of the planet?

300M HIDES COME FROM THE MEAT & DAIRY INDUSTRIES EVERY YEAR

60% IS USED FOR LEATHER. THE REST IS JUST TROWN AWAY

120M THAT IS 3M TONNES OF LANDFILL & 2.7M TONNES OF GREENHOUSE GASES. EVERY YEAR.

THE FASHION INDUSTRY PRODUCES **144 BILLION** ITEMS OF CLOTHING EVERY YEAR

WE NEED 3.5M ACRES OF FOREST, JUST TO RE-CAPTURE THE CARBON CREATED BY THIS WASTE.

65% OF ALL OUR CLOTHES ARE PLASTIC, SOURCED THROUGH DRILLING & FRACKING

EACH HIDE COVERS **4 SQM** WE WASTE NEARLY **480 MILLION SQM**

OF MATERIAL EACH YEAR, ENOUGH TO COVER **78,000 FOOTBALL PITCHES**

OR TO PUT SHOES ON THE FEET OF **EVERY MAN, WOMAN & CHILD** IN AFRICA

AND ONE LEATHER ITEM CAN **LAST A LIFETIME**

TO JOIN THE DISCUSSION FIND US AT: CHOOSELEATHER.COM



www.CHEMTAN.com

Made with
**WATERPROOF
TECHNOLOGY**

 **CHEMTAN**

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