

Summary for Claire Koelsch Sand, Ph.D.

Global Packaging Leader with 30+ years of broad experience in the food science and packaging spectrum. Skilled at leading cross-functional efforts, infusing innovative solutions, providing compelling business technology strategies and business cases, and pragmatic implementation roadmaps for the packaging and food industry.



Current Affiliations:

Owner and Founder

Packaging Technology and Research, LLC (formerly Ameripak).
Stillwater, Minnesota. 1996-present

Adjunct Professor

University of Minnesota. Minneapolis, Minnesota

Curriculum development and teaching, 2018-present

Michigan State University. E. Lansing, Michigan

Online MS program, 2007-present

California Polytechnic University (CalPoly), San Luis Obispo, California

Online program, 2017-present

Columnist

Food Technology monthly magazine

Packaging monthly column, 2015-present

Current Leadership:

1. pac, Co-Chair Food Waste, 2018-present
2. IUFoST, Chair of Global Food Packaging Curricula, 2016-present
3. Packaging Science and Technology, John Wiley and Sons, Editorial Board and Reviewer, 2004-present
4. Journal of Food Science Reviewer, 2014-present
5. Institute of Food Technologists (IFT) Higher Education Review Board (HERB), 2014-present
6. Institute of Food Technologists (IFT) Executive Board, Food Packaging Division, 1990-present
7. Strategic Relations & Chapter Affairs committee Phi Tau Sigma (food science honorary society), 2014-present
8. Lifetime member of *Phi Tau Sigma*
9. University of Minnesota Alumni Association and CFANS, 1992-present
10. Member of IoPP
11. Human Rights Commission Stillwater, Minnesota, 2013-present
12. Workforce Development Commission Stillwater, Minnesota, 2014-present
13. Advisor at Food and Beverage Wisconsin (FaB)– Incubator, 2017- present
14. Advisor at Hmong American Farmers Association (HAFA), 2017 - present

Expertise is based on experience in basic research, development market research, and marketing in Germany, Colombia, and Thailand and at Total Quality Marketing, Nestle, General Mills, Kraft Heinz, Safeway, and in academia. Dr. Sand holds a doctorate degree in Food Science and Nutrition from the University of Minnesota and MS and BS in Packaging from Michigan State University

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1. Current Affiliations

Current affiliations show integrity and commitment to the packaging profession and leadership in developing and acting upon strategy direction, building business cases, mentoring, and empowering ad-hoc and permanent cross-functional teams. As founder and owner of a company since 1996, my administrative skills have been refined from their academic and industry foundation. Pragmatic communication skill essential to working in the vast and wide packaging value chain is demonstrated by a track record of industry engagement.

Owner and Founder

Packaging Technology and Research, LLC. Stillwater, Minnesota. 1996-present

Responsible for:

1. Budgets
2. Securing funding via grant/proposals
3. Strategic planning
4. Resource management
5. Motivating and managing of cross-functional teams and working groups
6. Coaching and mentoring clients and employees to build skill sets needed to achieve career goals and advance in packaging
7. Technical resource to companies on packaging and safety

2018 Projects included:

1. Ranked and communicated (to multi-industry stakeholder groups) packaging solutions to reduce food waste by category impact and feasibility to channel research and development for food and packaging companies
2. Managed the research team at a pioneering US food company to fuel research and development on packaging innovation that reduces food-service operator and grocerant labor while decreasing food waste
3. Lead research initiatives for one of the world's leading specialty chemical companies to bring added shelf life through patentable packaging.
4. Lead cross-functional innovation team through a 6-month process to identify packaging research needed, partners, and implementation paths
5. Built research program within Innovation team for a major global food company
6. Directed food and packaging companies on where to funnel research at 23 Global Food Packaging Research Institutes using 25 criteria in Permeability, Testing, Applied Research, Package Design, and Material Science
7. Roadmapped implementation of a major US food company leadership team to pinpoint the optimal intelligent packaging
8. Refined a major US food company leadership team to refine its sustainable packaging strategy.
9. Assessed mitigation risk from packaging migrants of concern
10. Defined packaging for improved ordering, logistics, and consumer experiences in e-commerce
11. Researched, tested and launched edible film application to inhibit freezer burn in raw meat and reduce packaging

12. Analysis of technology within the food and polymer industries to guide Merger and Acquisitions
13. Developed and tested solutions to extend the shelf life of baked goods enabling conversion to “clean label”

Adjunct Professor

Adjunct Professor

University of Minnesota. Minneapolis, Minnesota

Curriculum development and teaching, 2018-present

- Created Sustainable Packaging Design and Manufacturing course within the multidiscipline area of Applied Business, Manufacturing Engineering, and Biological System Engineering

Michigan State University. E. Lansing, Michigan

Online MS program, 2007-present

- Created and taught the Packaging Value Chain (now the Advanced Value Chain) course from an existing structure

California Polytechnic University (CalPoly), San Luis Obispo, California

Online program, 2017-present

- Created and taught the Packaging Value Chain course to meet CalPoly unique needs

Columnist

Food Technology monthly magazine

Packaging monthly column, 2015-present

- Defined yearly calendar based on industry and research trends
- Connected with industry and research leaders to provide readers with up-to-date information

Current Leadership:

1. pac, Co-Chair Food Waste, 2018-present
2. IUFoST, Chair of Global Food Packaging Curricula, 2016-present
3. Packaging Science and Technology, John Wiley and Sons, Editorial Board and Reviewer, 2004-present
4. Journal of Food Science Reviewer, 2014-present
5. Institute of Food Technologists (IFT) Higher Education Review Board (HERB), 2014-present
6. Institute of Food Technologists (IFT) Executive Board, Food Packaging Division, 1990-present
7. Strategic Relations & Chapter Affairs committee Phi Tau Sigma (food science honorary society), 2014-present
8. Lifetime member of *Phi Tau Sigma*
9. University of Minnesota Alumni Association and CFANS, 1992-present
10. Member of IoPP
11. Human Rights Commission Stillwater, Minnesota, 2013-present
12. Workforce Development Commission Stillwater, Minnesota, 2014-present
13. Advisor at Food and Beverage Wisconsin (FaB)– Incubator, 2017- present
14. Advisor at Hmong American Farmers Association (HAFA), 2017 - present

2. Industry Experience: Networking with Stakeholders

My consistent track record of achievement and industry networking shows proven ability to empower and motivate industry groups. With a focus on leading the packaging community with integrity, passion, and respect needed in networking relationships, I have proven ability create networking opportunities, facilitate fundraising, as well as advocate for science-based decisions through symposia, webinars, and short courses.

Present Achievements and Industry Networking

1. Selected as Co-Chair of pac, 2018-present
2. Elected as a Fellow of the Institute of Food Technologists, 2017
1. Selected as the Packaging columnist, IFT's Food Technology magazine, 2017-present
2. Selected as Chair of Global Food Packaging Curricula of IUFoST, 2016-present
3. Selected as Editorial Board and Reviewer Packaging Science and Technology, John Wiley and Sons, 2004-present
4. Selected as Editorial Board member Journal of Food Science 2014-present
5. Selected as Higher Education Review Board (HERB) member, 2014-present
6. Elected to the Executive Board, Food Packaging Division, 1990-present
7. Elected to the Phi Tau Sigma (food science honorary society),
8. Elected to the Phi Tau Sigma Strategic Relations & Chapter Affairs committees, 2014-present
9. Appointed to Human Rights Commission Stillwater, Minnesota, 2013-present
10. Appointed to Workforce Development Commission Stillwater, Minnesota, 2014-present
11. Member of IoPP
12. Advisor at Food and Beverage Wisconsin (FaB)– Incubator, 2017- present
13. Advisor at Hmong American Farmers Association (HAFA), 2017 - present

Selected Past Achievements and Industry Networking

1. Elected CoChair, Institute of Food Technologists Food Packaging Division, 1994-1995; 2017 to 2018
 - Managed 15-member team in developing symposia, webinar, and event planning to meet stakeholder needs
2. Elected to the Board of Directors of Michigan State University School of Packaging Alumni Association, 1996 to 2003
 - Fundraising - this team refined scholarship process which led to an increase in the number and dollar amount of student scholarships
3. Elected as Membership Committee Chair of Michigan State University School of Packaging Alumni Association, 2000-2001
4. Elected as Secretary of Michigan State University School of Packaging Alumni Association 1999 to 2000
5. Selected as Global Interests subcommittee, Institute of Food Technologists 1997 to 2000
6. Selected as Task Force on Governance, Institute of Food Technologists 1997 to 1998
7. Selected as National Councilor, Institute of Food Technologists 1996 to 1997
8. Selected as Newsletter Editor, Institute of Food Technologists Food Packaging Div (1990 to 1993
9. Elected as Chairperson, Institute of Food Technologists Food Packaging Div 1993 to 1994
10. Elected as Chair-Elect, Institute of Food Technologists Food Packaging Div 1992 to 1993

3. Industry: Technology Leadership and Innovation

I have a breadth of global industry experience that spans from basic research to development and into market research and marketing. This provides a deep understanding of stakeholder relationships within the value chain. Human resource, administration, and motivational and leadership skills balance technical skills.

Industry: Management and Administration

Packaging Technology and Research, LLC (formerly Ameripak). Stillwater, Minnesota

Founder and Owner, 1996-present

Responsible for:

1. Budgets
2. Securing funding via grant/proposals
3. Strategic planning
4. Resource management
5. Motivating and managing of cross-functional teams and working groups
6. Coaching and mentoring clients and employees to build skill sets needed to achieve career goals and advance in packaging
7. Technical resource to companies on packaging and safety

J.E. Austin and Associates Washington DC

Advisor, 2009

1. Food production/packaging Kingdom of Saudi Arabia

Dominick's Finer Foods. Northlake, Illinois

Category Brand Manager, 1997-1998

1. Developed and implemented strategies that increased international food sales by 55%
2. Identified, sourced, purchased, and marketed international foods
3. Applied alternative product, package, and marketing of international foods

Total Quality Marketing. Chicago, Illinois

Package and Product Development Consultant, 1995-1997

1. Conducted research to identify opportunities and refine growth strategies for multiple clients
2. Systematized product optimization, training, shelf life extension, investments, and testing

Kraft Foods. Glenview, Illinois

Technical Business Manager, 1993-1995

1. Managed product launches and resolved food recall issues relating to packaging
2. Responsible for the research associated with product/process/package for \$126 million Confection Div at Kraft Foods

Industry: Research and Development and Innovation

Packaging Technology and Research, LLC. Stillwater, Minnesota. 1996-present

2018 Innovation Projects included:

1. Identified, prioritized, and gauged the financial impact of and communicated (to multi-industry stakeholder groups) packaging solutions that reduce food waste by category impact and feasibility to channel research and development for food and packaging companies
2. Managed the research team at a pioneering US food company to fuel research and development on packaging innovation that reduces food-service operator and grocerant labor while decreasing food waste
3. Lead research initiatives for one of the world's leading specialty chemical companies to bring added shelf life through patentable packaging.
4. Lead cross-functional innovation team through a 6-month process to identify packaging research needed, partners, and implementation paths
5. Built research program within Innovation team for a major global food company
6. Directed food and packaging companies on where to funnel research at 23 Global Food Packaging Research Institutes using 25 criteria in Permeability, Testing, Applied Research, Package Design, and Material Science
8. Roadmapped implementation of a major US food company leadership team to pinpoint the optimal intelligent packaging
9. Refined a major US food company leadership team to refine its sustainable packaging strategy.
10. Assessed mitigation risk from packaging migrants of concern
11. Defined packaging for improved ordering, logistics, and consumer experiences in e-commerce
12. Researched, tested and launched edible film application to inhibit freezer burn in raw meat and reduce packaging
13. Developed and tested solutions to extend the shelf life of baked goods enabling conversion to "clean label"

Kraft Foods. Glenview, Illinois

Research Engineer, 1992-1993

1. Managed rapid development and production scale-up of 1994 introductions
2. Researched and resolved the cause of *Kraft* marshmallow stickiness (trisodium phosphate control) reducing product loss by 65%.
3. Led a "Special Situation" team to resolve a recall and safety crisis
4. Launch of *Kraft* Fat-free Philadelphia Cream Cheese.
5. Launch of *Kraft* Halloween, Spring, and 4th of July Marshmallow shapes.

Grand Metropolitan (General Mills). Minneapolis, Minnesota

Engineer, Strategic Technology Division, 1991

1. Explored ohmic, microwave, minimal processes
2. Assessed applicability of expert systems to predict shelf life
3. Assessed silicon oxide (glass) coatings on retort packaging

Gerber Products Company (Nestle), Fremont, Michigan
Packaging Engineer, 1986–1987

Bangkok Orchids Co., Bangkok, Thailand
Packaging Volunteer Advisor, January - April, 1986

Charles of the Ritz, Holmdel, New Jersey
Packaging Intern, Summer 1984

General Motors, Detroit, Michigan
Engineering Intern, Summer 1985

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4. Academic Experience

Proven academic management, teaching, grant/proposal, publishing and research abilities, and passion. Experience with different university systems provides an appreciation for the role of service.

Academic: University and Stakeholder Management

University of Wisconsin. Menomonie, Wisconsin

Administrative and Research Director, Food Packaging Technology Center, 2002-2007

1. Co-developed, implemented, and managed the creation of the Center which served as a business incubator
2. Engineered \$11.2 million for center for small farms and value-added food businesses
3. Initiated and directed research project work with small area farmers and businesses
4. Chair and Vice Chair of Curriculum and Instruction Committee 2002-2006

Academic: Teaching and Course Development

University of Minnesota. Minneapolis, Minnesota

Adjunct Faculty, 2018-present

1. Created Sustainable Packaging Design and Manufacturing course within the multidiscipline area of Applied Business, Manufacturing Engineering, and Biological System Engineering

University of Wisconsin. Menomonie, Wisconsin

Tenured Associate Professor, 1998-2007

1. Dean's Recognition for excellence in multidisciplinary approach
2. Outstanding Researcher of the Year Nominee 2003
3. Created and taught Food Packaging and Advanced Food Packaging courses
4. Responsible for teaching 4 course per semester

Academic: Online Teaching and Course Development

Michigan State University. E. Lansing, Michigan

Online MS program, 2007-present

1. Created and taught the Packaging Value Chain (now the Advanced Value Chain) course from an existing structure

California Polytechnic University (CalPoly), San Luis Obispo, California

Adjunct Faculty, 2017-present

1. Created and taught the Packaging Value Chain course to meet CalPoly unique needs

Rochester Institute of Technology. Rochester, New York

Adjunct Faculty, 2009-2011

1. Created and taught the Packaging Value Chain course to meet RIT unique needs

University of Florida. Gainesville, Florida

Adjunct Faculty. Blended, 2010-2012

1. Created and taught the Consumer Packaging and Packaging Fundamentals courses to fill the gap for an absent faculty member

Academic: Research

University of Wisconsin. Menomonie, Wisconsin

Tenured Associate Professor, 1998-2007

1. Outstanding Researcher of the Year Nominee 2003
2. Refined processes for measuring permeability from highly permeable films
3. Built undergraduate research initiative

Fraunhofer Institute - IVV, Freising, Germany

Guest Scientist, January - July 1992

1. Co-developed EU standards on migration from polymer into high-fat foods SCFE/MS while a Guest Scientist at the *Fraunhofer Institut* – IVV. This led to the consistent evaluation of polymer migrants across the EU.

University of Minnesota, St Paul Minnesota

Research Assistant, Department of Food Science and Human Nutrition, 1989-1992

1. Resolved moisture transfer within heterogeneous (such as granola bars and Raisin Bran) food systems identified the use of C:16 as the optimal carbon length to retard moisture migration.
2. This research and the concept of using tortuosity is still used to guide the design of and assess the efficacy of edible barriers in retarding moisture migration.

Michigan State University

School of Packaging, Research Assistant, 1987-1989

1. Developed a process to measure lipid oxidation at constant oxygen concentrations

School of Packaging, Teaching Assistant, 1987-1989

2. Responsible for teaching Packaging Materials laboratory sections

Deans Graduate Assistant, College of Agriculture and Natural Resources, 1987-1989

1. Managed all logistical and promotional activities associated with the *Small Animals Day* annual event
2. Coordinated undergraduate recruitment for the College of Agriculture and Natural Resources

Org. of American States, Bogota, Colombia

Technical Advisor, June - September 1986

1. Developed a food packaging laboratory model at existing food research facility

5. Publications

Peer-reviewed, columnist, chapters, and book publications establish the ability to communicate and advocate for packaging to the industry as well as to academia to move packaging research and development forward.

Publications: Written

1. Boz, Z., Parra, J., and Sand, C., 2019. Recent Challenges and Advances in Migration from Packaging Materials into Foods. *Packaging Technology and Science*. In Process
2. Sand, C. and Boz, Z., 2019. Packaging Solutions to Food Waste: Impact and feasibility. *Packaging Technology and Science*. In Process.
3. Boz, Z. and Sand, C., 2019. The combined effects of nutrient loss and food waste for tomatoes, spinach, and kidney beans as a function of processing conditions. *LWT*. In Process.
4. Boz, Z., Sand, C., Korhonen, V., 2019. Consumer Research on Packaging Sustainability-Summary and Research Direction. *Packaging Technology and Science*. Submitted.
5. Sand, C, 2018. E-commerce packaging demands efficiency. *Food Technology*, December
6. Boz, Z. and Sand, C, 2018. Packaging that Communicates Freshness. *Food Technology*, November
7. Sand C, 2018. Raising the Bar: High Barrier Polymers. *Food Technology*, October
8. Sand, C, 2018. Packaging Resonates at IFT18. *Food Technology*, September
9. Sand, C, 2018. Packaging Quenches Thirst for Beverages. *Food Technology*, August
10. Sand, C, 2018. Bio-Derived Polymers for Food Packaging. *Food Technology*, July
11. Sand, C, 2018. A Lot to Pack in at IFT18. *Food Technology*, June
12. Sand, C, 2018. Package Testing. *Food Technology*, May
13. Sand, C, 2018. Packaging Laws and Regulations. *Food Technology*, April
14. Sand, C, 2018. Pet Food Packaging. *Food Technology*, March
15. Sand, C, 2018. Future of Food Packaging. *Food Technology*, February
16. Sand, C, 2018. Packaging to Keep Produce Fresh. *Food Technology*, January
17. Sand, C, 2017. Value -Added Packaging. *Food Technology*, December
18. Sand, C, 2017. Materials for Increased Packaging Sustainability. *Food Technology*, November
19. Sand, C, 2017. Ingredient Packaging Close-up. *Food Technology*, September
20. Sand, C, 2017. Global Approaches to Sustainable Food Packaging. *Food Technology*, October
21. Sand, C, 2017. Good Things Come in Packaging. *Food Technology*, August
22. Sand, C, 2017. Packaged to Preserve. *Food Technology*, July
23. Sand, C, 2017. Vetting Food Packaging. *Food Technology*, June
24. Sand, C, 2017. Packaging Opportunities Are Nicely Bundled at IFT17. *Food Technology*, May
25. Sand, C, 2017. Business Case for Reducing Food Waste. *Food Technology*, April
26. Sand, C, 2017. Food Service Craves Packaging. *Food Technology*, March
27. Sand, C, 2017. Barrier packaging. *Food Technology*, February
28. Sand, C, 2017. Packaging Solutions for Clean Label Products. *Food Technology*, January
29. Sand, C., 2016. Packaging Shapes Up and Feels Great. *Food Technology*, December
30. Sand, C., 2016. Innovations in Plastic Food Packaging. *Food Technology*, November
31. Sand, C., 2016. Increasing Agility in the Packaging Value Chain. *Food Technology*, October
32. Sand, C., 2016. The Packaging Scene at IFT16. *Food Technology*, September
33. Sand, C., 2016. Pivots Package Innovation. *Food Technology*, August
34. Sand, C., 2016. Reduce Packaging Costs. *Food Technology*, July

35. Sand, C., 2016. Packaging Solutions at IFT. Food Technology, June
36. Sand, C., 2016. MAP Expands. Food Technology, May
37. Sand, C., 2016. Food Packaging Research. Food Technology, April
38. Sand, C., 2016. Societal Factors Influence Packaging. Food Technology, March
39. Sand, C., 2016. Opening Innovation with Closures. Food Technology, February
40. Sand, C., 2016. Strategies to Halt Package Fraud. Food Technology, January
41. Sand, C., 2015. Packaging Machinery Flexes. Food Technology, December.
42. Sand, C., 2015. Intelligent Packaging Advances. Food Technology, November.
43. Sand, C., and Brody, A., 2015. Packaging innovations that decrease consumer derived food waste. Food Technology, October.
44. Sand, C., and Brody, A., 2015. Packaging that Sells. Food Technology, August.
45. Brody, A., Sand, C. Sabbagha, F., 2014. RFID in Packaging using Value Chain. Food Technology. October
46. Brody, A., Sand, C. Sabbagha, F., 2014. RFID in Packaging. Food Technology. September. pp79-80.
47. Sand, C., 2010. Book-The Packaging Value Chain. DesTech Publishing.
48. Sand, C., 2009. Chapter-Packaging sustainability and bio-degradable films and packaging in Modified Atmosphere Packaging MAP for Fresh-cut Fruit and Vegetables Brody, Han, Hong.
49. Sand, C.K., 2009. Food Service Packaging. Wiley Encyclopedia of Packaging Technology.
50. Casper, D.F., and Sand, C.K., 2009. Specifications and Quality Procedures. Wiley Encyclopedia of Packaging Technology.
51. Brody, A., Bugusu, B., Han, J., McHugh, T., Sand, C.K., 2008. Scientific Status Summary: Innovative Food Packaging Solutions. Food Technology.
52. Sand, C., 2007. Book-Understanding and Executing Sustainability Initiatives and Sustainable Packaging Programs. Packaging Strategies.
53. Sand, C.K. and Blakistone, B., 2007. Using packaging technologies to respond to Consumer, Retailer, and Seafood Industry needs. Proceedings from International Smoked Fish Conference March. Anchorage, Alaska.
54. Sand, C., 2007. Understanding and Executing Sustainability Initiatives and Sustainable Packaging Programs. Packaging Strategies.
55. Sand, C.K., 1996. Translating Consumer Needs into the Package. Packaging Yearbook, 1996. Washington DC. Editor Blakistone, B. pp 98-114.
56. Sand, C.K., 1996. Specifications and Quality Assurance. In The Wiley Encyclopedia of Packaging Technology. New York. Editor Brody, A. 849-852.
57. Koelsch, C.M., 1994. Edible Barriers: A Review of their Properties and Promise. Trends in Food Sci. and Tech. 5 (3): 76-81.
58. Koelsch, C.M. and Labuza, T.P., 1992. Functional, Morphological and Physical Properties of Edible Fatty Acid Based Barriers. Lebensm. Wiss. und Technol. 25: 404-411.
59. Koelsch, C.M. and Labuza, T.P., 1991. Plastic, Packaging and Municipal Solid Waste: The Current Controversy I and II. Cereal Foods World. 36 (1): 44-52; 36 (3): 284-298.
60. Koelsch, C.M., Downes, T.W., and Labuza, T.P., 1991. A System and Kinetic Expressions for the Measurement of Hexanal Formation via Lipid Oxidation as a Function of Oxygen Concentration. Journal of Food Sci. 56 (3): 816-834.
61. Hong, Y.C., Koelsch, C.M., and Labuza, T.P., 1991. Using the L# to Predict the Efficacy of Moisture Barrier Properties of Edible Food Coating Materials. J. Food Proc. Pres. 15: 45-62.

Publications: Presentations, Panels, Webinars, and Short Courses

1. Sand, C.K., 2019. Economics of food waste reduction as a function of packaging solutions: building the business case for packaging solutions to food waste. Food Packaging, Shelf Life, and Food Safety conference. Munich. Fall 2019
2. Boz, Z., Parra, J., and Sand, CK, 2019. Migration from Packaging - Concerns and Opportunity. IAPRI Netherlands. June 2019
3. Sand, C.K., Boz, Z., Korhonen, V., 2019. Current Issues and Advances in Consumer Research and Testing for Sustainable Packaging. IAPRI, Netherlands. June 2019
4. Boz, Z., Parra, J., and Sand, C., 2019. Recent Challenges and Advances in Migration from Packaging Materials into Foods. IFT Annual meeting June 2019
5. Sand, C.K., 2019. Quantifying the impact of packaging solutions to reduce food waste in Symposia entitled Packaging solutions to reduce food waste: Packaging Case studies. IFT Annual meeting June 2019
6. Sand, C.K., 2019. Packaging for food waste minimization in symposia: Food loss and waste minimization in fruit and vegetable chains: global perspectives and opportunities for transformation into high-value products and ingredients. IFT Annual Meeting. June 2019
7. Sand, C.K., 2018. Symposia Co-Chair: Packaging solutions to reduce food waste: Packaging Case studies. IFT Annual Meeting. June 2019
8. Sand, C.K., 2018. Sustainable packaging and its role in reducing food waste. luFoST, Mumbai, October 2018.
9. Sand, C.K., 2018. Symposia Co-Chair: New Packaging Materials to Address Sustainability. luFoST, Mumbai, October 2018.
10. Sand, C.K., 2018. Keynote: Packaging with more value. Keynote Food Tech Summit & Expo Mexico Mexico. September 2018.
11. Sand, C.K., 2018. The Role of Intelligent Packaging and the Internet of Things. Food Engineering conference. Symposia Chair. Minneapolis. September 2018
12. Sand, C.K., 2018. Symposia Co-Chair: Food Packaging and Shelf Life. Food Engineering conference. Minneapolis. September 2018
13. Sand, C.K., 2018. The future of Intelligent packaging. IFT. Chicago. July 2018
14. Sand, C.K., 2018. Symposia Co-Chair: The future of food packaging. IFT. Chicago. July 2018
15. Sand, C.K., 2018. Packaging value chain. Pac Webinar.
16. Sand, C.K., 2018. Packaging technologies and value chain concepts to advance value-added pulse-based foods. McGill Convergence Innovation Webinar
17. Sand, C.K. and Boz, Z., 2018. Nutrient Loss as a Function of Packaging, Processing and Food Waste for Tomatoes, Peaches, Kidney Beans, and Spinach. International Association of Packaging Research Institutes Zhuhai, China. June 2018
18. Sand, C.K., 2017. Packaging technologies and value chain concepts to advance value-added pulse-based foods. Convergent Innovation Webinar Series. McGill. Montreal. March 2017
19. Sand, C.K., 2017. Packaging technologies and value chain concepts to advance value-added pulse-based foods. Convergent Innovation Webinar Series. McGill. Montreal. March 2017.
20. Sand, C.K., 2017. Tactical packaging challenges and solutions for fresh seafood. Louisiana. January 2017
21. Sand, C.K., 2017. Packaging value chain. IFT FPD Webinar.

22. Sand, C.K., 2016. Food Packaging Research Needs. IFT Annual convention, Chicago, IL July 2016.
23. Sand, C.K. 2015. Enabling your Innovations using the Packaging Value Chain. AMI Multilayer films conference. Chicago, June 3, 2015
24. Sand, C.K. 2015. GFSI, BRC, SQF and Beyond: Where Food Safety is Heading and Packaging's Role in Getting Us There. ADS Annual Technical Meeting San Antonio, Texas. May 5, 2015.
25. Sand, C.K. 2015. Bringing in Innovation with the Packaging Value Chain. IFT Webcast February 26, 2015.
26. Sand, C.K. 2014. Influence of Packaging on Flavors in Foods. Flavor Short Course. University of Minnesota, St. Paul, MN
27. Sand, C.K., 2014. Interview for Wall Street Journal: See-Through Food Packaging Boosts Sales Clear Packages Draw Shoppers But Are Very Tricky; What's Best Left Unseen
28. Sand, C.K. 2008. Research Developments and Needs in Sustainable Packaging Metrics. IFT Panel. IFT Annual meeting. New Orleans, LA.
29. Sand, C.K., 2008. IFT Short Course Speaker on packaging for Food Science for non Food Scientists. IFT Annual meeting. New Orleans, LA.
30. Sand, C.K., 2008. Exercising Sustainable Packaging in the Sports Drinks Arena: New Technologies in Food Packaging that Enhance Shelf Life, Wellness, and Sustainability, Developing and Marketing Products for Consumer Health & Wellness. Rosemont, IL
31. Sand, C.K., 2008. Sustainability will Drive the Packaging Value Chain. Packaging Executives Forum, E. Lansing, MI.
32. Sand, C.K., 2007. More Sustainable Food Packaging. Quality Assurance Association. Edina, MN.
33. Sand, C.K., and Brody, A., and Rubino, M., 2007. Food Packaging for Food Scientists. IFT Annual meeting. Chicago, IL.
34. Sand, C.K. and Blakistone, B., 2007. Using packaging technologies to respond to Consumer, Retailer, and Seafood Industry needs. International Smoked Fish Conference March. Anchorage, Alaska.
35. Sand, C.K., 2007. More Sustainable Food Packaging. Quality Assurance Association. Edina, MN.
36. Sand, C.K. 2007. Food packaging Innovations Needed to Respond to Sustainability Initiatives. IFT Panel. IFT Annual meeting. Chicago, IL
37. Sand, C.K., 2003. Appleton on-site training session. Appleton, WI
38. Sand, C.K., 2003. On-campus training session for Appleton. University of Wisconsin-Stout.
39. Sand, C.K., 2002. Teaching in the Laptop Environment. IAPRI Conference Worldpak. E. Lansing, MI MSU.
40. Sand, C., 2001. Researcher of the Year Nominee Presentation. University of Wisconsin-Stout.
41. Sand C.K., 2000. Package and Product Development for Beginners at Bringing Profit Back to the Farm in Eau Claire for University of Wisconsin cooperative extension service February, 2000

6. Expert Witness Legal Experience

Johnsonville Sausage v Klement Sausage

US District Court Case No. 2:16-CV-938

- Quarles and Brady. Milwaukee Wisconsin
- Expert Report (early 2019)

Trailblazer Food Product, Inc. v Silgan White Cap LLC

US District Court 3:2017cv00417

- David Rothwell. Portland, OR
- Expert Report (mid-2018)
- Trial (mid 2019)

Inline Packaging Inc v Graphic Packaging International, Inc.

IPR2015-01609

- Neustel Legal. Fargo, SD
- Declaration in support of petition for inter parties review (mid-2015)
- Depositions (mid and early-2016)
- Complete-Successful Ruling: PTAB decision invalidated all 53 claims (early-2017)

KH Enterprises Group, Inc v. Swiss Valley Farms

Cooperative Civil File No 12-cv00086.

- Faegre Baker Daniels, LLP. Minneapolis, MN
- Expert reports (2017)
- Deposition (2017)
- Complete-Case settled

ScentSational Technologies, LLC v. PepsiCo, Inc., et al.

C.A. No.: 13-cv-8645 (KMK) (LMS) (SDNY)

- Leason Ellis. White Plains, NY
- Expert report (early-2016)
- Deposition (mid-2016)
- Complete-Case settled

Alessandro Berni, et al. v. Barilla S.p.A., et al.

Eastern District of New York 1:16-cv-04196;

- Harwood Feffer LLP

7. Education

1. Ph.D., Food Science and Nutrition, University of Minnesota, 1992
 - Coursework in Strategic Management, Labor History, and Chemical Engineering in addition to Food Science
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NOT RETAINED