



AMY MEYERS WELLS, Ph.D.

PROFESSIONAL BIOGRAPHICAL OUTLINE

BACKGROUND

Dr. Wells is a Polymer Chemist with over 15 years of experience in the failure analysis field. She has analyzed a variety of both non-metallic and metallic components for aviation, automotive, industrial, electronics, and consumer products cases. Dr. Wells also specializes in battery failures including lithium-ion batteries and has taught continuing education on the subject matter.

Dr. Wells holds a Ph.D. in Organic Chemistry from the Georgia Institute of Technology and a Bachelor of Science in Chemistry from the University of West Florida. Her research focused on the characterization of polymers for organic light emitting diodes. Using her education and experience, Dr. Wells is proficient in identifying, analyzing, and characterizing plastic components, paints and coatings, greases, oils, lubricants, natural and synthetic fibers, rubbers, as well as plasticizers and additives including flame retardants.

As a forensic investigator, Dr. Wells also has years of experience identifying fracture modes in both plastics as well as metallic components, such as PEX pipes, PVC pipes, HDPE fuel tanks, and compressor turbine blades.

AREAS OF SPECIALTY

- Laboratory Analysis of Materials
- Failure Investigation and Analysis of:
 - Aviation Components
 - Electronic Components
 - Plastic Components
 - Rubber Components
 - Batteries – Lithium-ion, Ni-metal hydride
- Laboratory Safety
- Microscopic Chemical and Material Analysis
- Polymer Chemistry
- Materials Science
- Forensic Chemistry
- Flame Retardants
- Plastic Failures
- Identification Plastic Additives
- Circuit Board and Electronic Connectors
- Paint and Coatings

EDUCATION & TRAINING

- Bachelor of Science in Chemistry, University of West Florida, 2000
Laboratory and Teaching Assistant
Ralph K. Birdwhistell Scholarship, Analytical Award for Excellence, Solutia Academic Achievement Award, Outstanding Student of Chemistry Department
- Doctor of Philosophy in Chemistry, Georgia Institute of Technology, 2005
Cherry Emerson Fellowship, GAANN Fellowship, Molecular Design Institute Fellowship
 - Ph.D. Dissertation Title: "Design and synthesis of metal functionalized poly(norbornenes) for potential use in electro-optical devices"

PROFESSIONAL EXPERIENCE

2024 -- Present | ARCCA, LLC | Senior Polymer Chemist Consultant

- Forensic examination and failure analysis of polymer materials and batteries

2024 -- Present | ATS Pensacola | Laboratory and Testing Operations Manager

- Conducts forensic examination of materials involved in a failure analysis, including photo documentation, optical microscopic and scanning electron microscope (SEM) examination, and material identification
- Analyze chemical and material properties using laboratory techniques such as FTIR, EDS, TGA, DSC and mass spectrometry
- Coordinates multi-party laboratory inspections; manages instrument and equipment usage, operations, and maintenance
- Performs chemical and materials identification and documentation as part of failure analysis investigation

2008 -- 2024 | McSwain Engineering, LLC | Polymer Chemist Consultant

- Analyzed chemical composition, chemical and physical properties of failed and accident-related plastic, non-metallic and metallic components
- Provided expert opinions concerning the properties and failure mode of materials in both litigation and non-litigation cases
- Identified source of contaminants in local water treatment facility
- Developed methodology for analyzing wildlife affected by oil spill in Gulf of Mexico

2008 | University of West Florida | Visiting Chemistry Lecturer

- Taught multiple sections of General and Organic Chemistry lecture and laboratory courses.
- Developed new procedure for laboratory experiments.

2005 -- 2007 | Intel Corporation | Senior Process Engineer

- Organized and supervised daily activities for 32-person module to improve quality, cycle time, and yield by analyzing metrology and chemical data and statistical process charts, training technicians, working with vendors to improve instrument reliability, and collaborating with other modules to maximize throughput.

PROFESSIONAL MEMBERSHIPS

- American Chemical Society – Polymer Division
- American Society for Materials (ASM International)
- Failure Analysis Society ASM International (FAS)

PRESENTATION & CONFERENCE PARTICIPATION

“When Rubbers Fail – Why Reading the Fine Print is Necessary,” **Amy M. Wells**, Ph.D. and William Carden, MS, PE, McSwain Engineering, LLC., ASM International Materials, Applications & Technologies Conference, Detroit, MI, October 2023.

“The Burning Question – Identifying Flame Retardants in a Failure Analysis Investigation,” Dr. **Amy M. Wells**, Dr. Richard McSwain, PE, FASM, and Mr. William Carden, MS, PE, McSwain Engineering, Inc., ASM International Materials, Applications & Technologies Conference, New Orleans, LA, September 2022.

“Chain of Custody Procedures and Practices for Failure Investigations,” William Carden, **Amy M. Wells**, and Eric Van Iderstine, McSwain Engineering, Inc., ASM International Materials, Applications & Technologies Conference, New Orleans, LA, September 2022.

“How to Conduct a Laboratory Inspection in a Multiparty Failure Investigation,” William Carden, **Amy M. Wells**, and Eric Van Iderstine, McSwain Engineering, Inc., ASM International Materials, Applications & Technologies Conference, New Orleans, LA, September 2022.

“Dual Pipeline Explosions: Two Pipelines Meet in the Desert with Explosive Results,” William Carden, **Amy M. Wells**, and Eric Van Iderstine, McSwain Engineering, Inc., ASM International Materials, Applications & Technologies Conference, New Orleans, LA, September 2022.

“Getting Answers from Off-Gassing – How TGA-IR is Utilized in the Failure Analysis of Polymers,” Dr. **Amy M. Wells**, Dr. Richard McSwain, PE, FASM, and Mr. William Carden, MS, PE, McSwain Engineering, Inc., ASM International Materials, Applications & Technologies Conference, St. Louis, MO, September 2021.

“The Identification of Plastic Additives in a Failure Analysis Investigation,” Dr. **Amy M. Wells**, Dr. Richard McSwain, PE, FASM, and Mr. William Carden, MS, PE, McSwain Engineering, Inc. Materials Science & Technology Conference, Portland, OR, September 2019.

“Tire Analysis Tools and Techniques,” William Carden and **Amy M. Wells**, McSwain Engineering, Inc., Materials Science & Technology Conference, Pittsburgh, PA, October 2017.

“DSC and TGA: Tools for Analyzing the Thermal Characteristics of Polymers,” Dr. **Amy M. Wells**, Dr. Richard McSwain, PE, and Mr. William Carden, MS, PE, McSwain Engineering, Inc., Materials Science & Technology Conference, Salt Lake City, UT, October 2016.

“Contamination Identification of CPVC Pipes using DART Open-Beam Mass Spectrometry and Subsequent Fracture Analysis,” William Carden, **Amy M. Wells**, McSwain Engineering, Inc., Materials Science & Technology Conference, Columbus, OH, October 2015.

“Design and Synthesis of Metal Functionalized Poly(norbornenes) for Potential Use in Electro-optical Devices,” Organic Thin Films for Photonic Applications Session, 228th ACS National Meeting, August 2004, Philadelphia, PA.

“Design and Synthesis of Polymeric Light-Emitting Diodes,” Southeast Regional Meeting of the ACS, November 2003, Atlanta, GA.

“Synthesis and Characterization of Alq₃-Functionalized Polymers,” Alvin L. Kwiram Symposium on the Electrical, Optical, and Magnetic Properties of Organic and Hybrid Materials, June 2003, Seattle, WA.

“Synthesis of Alq₃-Containing Polymers Using Ring-Opening Metathesis Polymerization,” 224th ACS National Meeting, August 2002, Boston, MA.

PUBLICATIONS

Peer Reviewed

A. Meyers and M. Weck, “Design and synthesis of Alq₃-functionalized polymers,” *Macromolecules*, 2003, Vol 36, 1766-1768.

A. Meyers and M. Weck, “Solution and solid-state characterization of Alq₃-functionalized polymers,” *Chemistry of Materials*, 2004, Vol. 16, 1183-1188.

A. Meyers, C. South, and M. Weck, “Design, synthesis, characterization, and fluorescent studies of the first zinc-quinolate polymer,” *Chemical Communications*, 2004, 1176-1177.

A. Meyers, A. Kimyonok, and M. Weck, “Infrared-emitting Poly(norbornene)s and Poly(cyclooctene)s,” *Macromolecules*, 2005, Vol. 38, 8671-8678.

Non-Peer Reviewed

A. Meyers and M. Weck, "Synthesis of Alq3-Containing Polymers Using Ring-Opening Metathesis Polymerization," *Polymer Preprints*, 2002, Vol. 43(2), 1134.

A. Meyers, X.-Y. Wang, A. Kimyonok, C. South, X. Zhan, Y.-Y. Cho, B. Domercq, B. Kippelen, S. Marder, and M. Weck, "Metal Quinolate Polymers as Materials in Polymeric Organic Light-Emitting Diodes" *Polymeric Materials: Science and Engineering*, 2005, Vol. 92, 565.

Patent

Amy Meyers and Marcus Weck, "Metal 8-hydroxyquinoline-functionalized polymers and related materials and methods for making the same," US Patent 7,105,617 B2.

CONTINUING EDUCATION

Course Taught

Lithium-Ion Battery Risk and Common Claims: A Comprehensive Guide for Homeowner Insurance Adjusters, Webinar with Forte Consulting and Investigation, November 2, 2023

Course Taken

Intro to Handheld XRF – Theory and Safety

Source

Olympus

Date

2018

Get Answers Faster for Battery Failures

Thermo Scientific

2023