materials FACT

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JOSEPH QUINN, M.S., P.E.
PRINCIPAL MATERIALS CONSULTANT

Over 1000 investigations on metallic and non-metallic (glass, plastic, rubber, and composite) materials or products in products liability litigation, subrogation cases, insurance claims and industrial incidents; is a registered professional engineer in 7 states and holds the Model Law Engineer (MLE) designation; has awards in the international metallographic contest; and delivered several presentations on materials engineering and failure analysis subjects at universities, technical society meetings and industry events.

EDUCATION / CREDENTIALS:

- **P.E., Licensed Professional Engineer**, Metallurgical Engineering
- **E.I.T., Engineer-In-Training**, Certification No. 149358
- **M.S., Master of Science in Materials Engineering**, California State University, Northridge, CA
- **B.S., Bachelor of Science in Materials Science and Engineering**, University of Pittsburgh, Pittsburgh, PA

  Additional Certification - Ferrous Physical Metallurgy
- **A.A.S., Associate of Applied Science in Engineering Technology**: Westmoreland County Community College, Youngwood, PA

ENGINEERING REGISTRATIONS:

CA No. MT 1979; **PA** No. PE 086253; **UT** No. 10457[illegible]7-2202; **NV** No. 024957; **AZ** No. 65452
CO No. PE.0058189; **WA** No. 21004559

AREAS OF EXPERTISE:

- Product failures involved in water loss, fire & explosions, accidents, as well as other forensic investigations.
- Material failures due to abuse/misuse, application, design, environment, fabrication, installation, maintenance, manufacturing, and processing.
- Fatigue and Fracture of metallic and non-metallic materials
- Corrosion & environmental degradation/interaction of materials
- Mechanical behavior of materials
- Fasteners (bolts, rivets, threaded components)
- Weld, braze, solder evaluations
- Metallic and non-metallic plumbing components
- Automobile & transportation components
- [illegible]ponents
- Household appliance and consumer products
- Construction site equipment, heavy machinery & hand tools

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EXPERIENCE:

Materials FACT – El Segundo, CA
Owner/Principal Materials Consultant 2017 - present

Provides metallurgical and materials consultation, expert witness testimony, failure analysis, forensic studies, production problem solving, product research and development, laboratory testing, materials analysis and cost-effective materials selection.

EAG LABORATORIES, Inc. (Formerly SEAL LABORATORIES) – El Segundo, CA
Senior Member of Technical Staff, Metallurgy and Materials Science 2012 - 2017

Provides metallurgical and materials consultation, expert witness testimony, including materials analysis, failure analysis, assistance with products liability litigation, product research and development, production problem solving, materials selection, and forensic studies.

SEAL LABORATORIES, Inc. – El Segundo, CA
Senior Member of Technical Staff, Metallurgy and Materials Science 2012 - 2017

Provides metallurgical and materials consultation, expert witness testimony, including materials analysis, failure analysis, assistance with products liability litigation, product research and development, production problem solving, materials selection, and forensic studies.

INDUSTRIAL TESTING LABORATORY SERVICES, LLC – Pittsburgh, PA
Manager, Metallurgical and Mechanical Testing 2011 - 2012

Performed failure analysis of various products and components across different industries. Managed metallurgical and mechanical testing departments.

BASIC METALS PROCESSING RESEARCH INSTITUTE (BAMPRI) – Pittsburgh, PA
Research (Part-Time) 2011 - 2012

Designed research experiments, hands-on alloy processing, performed testing and analysis, prepared reports and presented conclusions. Authored report titles:

- "The Hardness of Martensite with Intercritical Annealing Time",
- "Increasing the Uniform Elongation of Advanced High Strength Steels",
- "The Microstructural Evolution and Nanohardness of intercritically annealed DP590 Steel with Three Different Starting Microstructures".

PRODUCT EVALUATION SYSTEMS, Inc. – Latrobe, PA
Metallographer/Member of Technical Staff 2006 - 2011

Assisted with litigation cases and failure analysis by identifying root cause of failure, failure mechanisms, processing defects, microstructural defects and design flaws; provided product research and development across various industries; conducted investigations, analysis, documentation, metallurgical testing to standards and reported results to customers; designed and set-up mechanical test experiments for failure analysis; designed Field Metallography practices and techniques for failure analysis.

QUINN CONSTRUCTION, Co. – Hostetter, PA
Carpenter/Electrician Assistant 2000-2006

Hands-on experience in construction, construction materials, processes, codes, construction of houses or buildings, roofing, and flooring. Hands-on experience with electrical wiring.

AWARDS:

- 2007 International Metallographic Contest, 2nd place, "Criticality of Composition and Temperature for a Forged Leaded Brass Component".
- 2009 International Metallographic Contest, 3rd place, "Unique Sulfidation Reaction at 900°C".
- 2019 National Society of Professional Engineers Marti Kramer award for Leadership Excellence.

PUBLICATIONS:

- J. Quinn, "Detailed Examinations to Determine the Percentage of Ferrite in the Heat Affected Zone of Welded Duplex Stainless Steels", Abstract Proceedings, International Materials Applications and Technologies, New Orleans, LA (9/2022).
- Kumar, A., S. Ensha, J.F. Irvin, J. Quinn, "Liquid Metal Corrosion Fatigue (LMCF) Failure of Aircraft Engine Turbine Blades", Journal of Failure Analysis and Prevention, Vol. 18, Issue 4, pp. 939-947, August 2018.

PRESENTATIONS:

- J. Quinn, "The Path to Prevention: Improving Materials Investigations", SpaceX 2025 Seminar, broadcasted from SpaceX Hawthorne, CA (3/18/25).
- J. Quinn, "Metallurgical Failure Analysis of an Industrial Fan", IMECA, Yosemite, CA (4/29/23).
- J. Quinn, "A New Method to Accurately Determine % Ferrite in the Heat Affected Zone of Duplex Stainless Steels", IMECA, Yosemite, CA (4/29/23).
- J. Quinn, "Improving Onsite Investigations for Materials Failure Analysis", 2022 Process Engineering & Industrial Technology Exposition, Anaheim, CA (11/3/2022).
- J. Quinn, "Detailed Examinations to Determine the Percentage of Ferrite in the Heat Affected Zone of Welded Duplex Stainless Steels", Proceedings, International Materials Applications and Technologies, New Orleans, LA (9/12/2022).
- J. Quinn, "Metallurgical Software & Failure Analysis", IMECA, La Jolla, CA (Fall, 2021).
- J. Quinn, "Today's Advanced Tools in Failure Analysis", ASM International San Fernando Valley chapter guest speaker (2016).
- J. Quinn, "Seal Laboratories, A Division of Evans Analytical Group, Inc.", Web Broadcast from Sunnyvale, CA (2015).
- J. Quinn, "Materials Consulting & Failure Analysis at SEAL Laboratories", ASM International Los Angeles & San Fernando Valley chapters (2015).
- J. Quinn, "Failure Analysis on a USB Module", California State University (2014).
- J. Quinn, C. Bunmasu, N. Changkaochai, "X-ray Photoelectron Spectroscopy (XPS)", California State University (2014).
- J. Quinn, A. Groenke, S. Collier, I. Shih, C. Bogan, H. Keushkerian, D. Adusumilli, "Metallurgy of Pb-Sn Solders", California State University (2014).
- J. Quinn, "Obtaining K_{1c} from Tensile Testing", California State University (2013).

- J. Quinn, C. Bunmasu, C. Vanyo Mitev, W. Lin., H. Hart. and C. Cheng. "ASTM E 561: Standard Test Method for K-R Curve Determination", California State University (2013).
- J. Quinn, "High Temperature Corrosion with a Failure Analysis Example in Sulfidation", California State University (2013).
- J. Quinn, "The Microstructural Evolution and Nanohardness of intercritically annealed DP590 Steel with Three Different Starting Microstructures", University of Pittsburgh (2012).
- J. Quinn, "The Assessment of High-Temperature Coatings for a Wrought Co-Based Alloy", University of Pittsburgh (2012)
- J. Quinn, "Increasing the Uniform Elongation of Advanced High Strength Steels", University of Pittsburgh (2012).
- J. Quinn, W. Weissberg, M. Iaboni, "The Hardness of Martensite in Dual-Phase Steels Used in the Automotive Industry", Science2011 Event (2011).
- J. Quinn, "The Effects of Silicon Content on Carbon Diffusion", University of Pittsburgh (2011).

PROFESSIONAL AFFILIATIONS:

- ASTM F04 Committee – Medical & Surgical Materials & Devices (F04.12 & F04.33) (2023-present)
- Member of Independent Metallurgical Engineering Consultants of California (IMECA) (2021-present)
- Past-President, National Society of Professional Engineers-California (NSPE-CA) (2023-present)
- President, National Society of Professional Engineers-California (NSPE-CA) (2021-2023)
- Chair, IMS/IMAT Programming for ASM International (2021-2023)
- Vice-President, National Society of Professional Engineers-California (NSPE-CA) (2019-2021)
- Regional Lead, NSPE-CA Greater Los Angeles (2018-2021)
- Board Member, Failure Analysis Society (FAS) (2021-present)
- Vice-Chair, IMS/IMAT Programming for ASM International (2020-2021)
- Member of The Failure Analysis Society (FAS) (Life member, since 2017)
- FAS Education Subcommittee (2018-present)
- Member of ASM International (Formerly American Society for Metals) (Life member, since 2011)
- Micrograph Database Committee for ASM International (2014-Present)
- Historical Landmark Committee for ASM International (2015-Present)
- Member of The International Metallographic Society (IMS) (past)
- Member of National Society of Professional Engineers (NSPE) (2015-Present)
- Member of ASTM International (Formerly American Society for Testing and Materials)
- ASTM E58 Committee - Forensic Engineering (E58.02 & E58.03) (2018-present)
- ASTM E30 Committee - Forensic Sciences (E30.11) (2018-present)
- ASTM F16 Committee - Fasteners (F16.01 & F16.02) (2017-present)
- Member of National Association of Corrosion Engineers (NACE) (since 2013)
- Member of American Society of Mechanical Engineers (ASME) (past)
- Member of The Minerals, Metals & Materials Society (TMS) (past)

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SELECT ENGINEERING COURSES:

- Failure Analysis
- Principals and Applications of Steel Alloy Design
- Mechanical Behavior of Materials (PITT)
- Materials Selection
- Corrosion
- Processing of Materials
- Mechanical Design
- Materials and Manufacturing
- Ferrous Physical Metallurgy
- Principals of Engineering Materials
- Mechanical Behavior of Materials (CSUN)
- Special Projects
- Experimental Methods in Materials Science and Engineering
- Kinematics
- Blueprint Reading
- Dimensional Inspection
- Materials Science I
- Materials Science II
- Control Seminar in Quality Management
- Structure and Properties Laboratory
- Statics and Mechanics of Materials
- Heat and Mass Transfer
- Energetics
- Phase Transformations
- Nanomaterials and Nanotechnology
- Electromagnetic Properties of Materials
- Materials Structure and Properties
- Electrical Circuits
- Thermodynamics
- Elements of Metallurgy
- Materials Engineering Research Practicum
- Materials Engineering Directed Comprehensive Studies
- Statics and Strength of Materials I
- Statics and Strength of Materials II
- Statics and Mechanics of Materials II
- Manufacturing Processes
- The Science and Engineering of Materials
- Engineering Management
- Advanced Heat Treating