



**PAUL EASON, Ph.D., P.E., CFEI**

## **SUMMARY**

Dr. Eason combines experience from academia, industry, and consulting to address a variety of engineering and forensic subjects. His broad based materials engineering education allows him to examine product defect and safety issues of metals, plastics, glass, and ceramics, including corrosion, fatigue, overload, and material selection. Paul has also actively participated in risk assessment for project management and failure modes and effects analysis in process and product design. As a forensic consultant, he has combined his knowledge of materials behavior with traditional techniques of fire investigation to tackle complex cause and origin issues and product liability concerns. Paul is also a nationally certified fire and explosion investigator and a licensed professional engineer in the state of Florida. He is versed in multiple forms of materials analysis, teaches undergraduate courses in materials engineering and mechanical design, and has worked on projects involving product design and manufacturing, product defects, failure analysis, corrosion, fire and explosion origin and cause, and industrial accidents.

## **EDUCATION**

### Formal Education

Doctor of Philosophy in Material Science and Engineering with an emphasis in metallurgy, environmental attack and alloy development, University of Florida, 1998  
Bachelor of Science in Materials Science and Engineering with a dual specialization in Metallurgy and Ceramic Engineering,  
University of Florida, 1995 Minor in Business Administration

### Professional Development

Principles of Failure Analysis, ASM – International  
Techniques of Risk Management, Risk and Insurance Management Society (RIMS)  
Determining the Cause and Origin of Fires and Explosions, National Association of Fire Investigators  
Traffic Accident Reconstruction, Northwestern University Traffic Institute  
Advanced Commercial Vehicle Inspection and Collision Investigation, Texas A&M University  
Annual Truck Inspection, Florida Trucking Association (FTA)  
Corrosion in Concrete Reinforcements Seminar, National Association of Corrosion Engineers (NACE)

## **LICENSURE AND CERTIFICATION**

Professional Engineer in Florida, FBPE #0000060836  
Certified Fire and Explosion Investigator, NAFI #7024-2717

## **PROFESSIONAL AFFILIATIONS AND AWARDS**

ASM - International  
The Minerals, Metals, Materials Society (TMS)  
American Ceramic Society (ACerS)  
American College of Forensic Examiners (ACFE)  
National Society of Professional Engineers  
National Association of Fire Investigators  
National Association of Professional Accident Reconstructionists  
Epsilon Lambda Chi  
Keramos  
2002 Appointed to University of Florida, Department of Materials Science and Engineering  
Distinguished Alumni Board  
1995 University of Florida Presidential Recognition Award

## **PROFESSIONAL EXPERIENCE**

**FORCON International**, Florida - Forensic Materials/Metallurgical Engineer  
Conduct forensic engineering investigations and provide expert witness testimony for cases involving product defects and safety issues of metals, plastics, glass and ceramics including corrosion, fatigue, overload and material selection as well as fire and explosion origin and cause and industrial accidents.

**e4 Consulting**, Jacksonville, FL - Engineering Consultant / President,  
**University of North Florida**, Jacksonville, FL- Assistant Professor, Mechanical Engineering,  
**University of Florida**, Gainesville, FL Graduate Faculty Member, Materials Science and Engineering  
**KHA/ZMA**, Jacksonville, FL - Forensic Professional,  
**Benedict Engineering Company**, Tallahassee, FL - Engineering Consultant  
**University of Florida**, Gainesville, FL - Electron Microscopist/Alloy Metallurgist, Major Analytical Instrumentation Center  
**University of Florida**, Gainesville, FL - Graduate Research Assistant, UF Department of Materials Science and Engineering  
**University of Florida**, Gainesville, FL - Teaching Assistant, UF Department of Material Science and Engineering,  
**University of Florida**, Gainesville, FL - Lab Consultant/Teaching Assistant, UF Department of Computer Science and Engineering  
**Jacksonville Electric Authority**, Jacksonville, FL - Engineering Assistant II,

## **PRESENTATIONS**

“Reassessment of the Mo-Si-Al Ternary Isotherm at 1400°C,” American Ceramic Society Annual Cocoa Beach Conference 1998, January 22, 1998, Cocoa Beach, FL.

“Processing of Low-Silica MoSi<sub>2</sub>-Based Compounds II: Aluminum Additions,” 1196 TMS Fall Meeting, October 17, 1998, Cincinnati, OH.

“The Power of Using an Electronic Presentation to Reach the Jury,” Academy of Florida Trial Lawyers Advanced Trial Skills Seminar, November 18, 1999, Orlando, FL.

“Project Management for Engineering Cases,” Alabama Trial Lawyers Association Special Seminar, August 11, 2000, Birmingham, AL.

“How to Manage Engineering Intensive Cases” Georgia Defense Lawyers Association Summer Meeting June 23, 2001, Destin, Florida.

“The Use of Spectroscopy and Electron Beam Analysis Techniques in Forensic Science” ANS/FSM Annual Joint Symposium, March 11, 2002.

“What in the World Does a Forensic Metallurgist / CFEI Do?” Physical Sciences Outreach Program, July 8, 2000, Gainesville, FL.

“The Role of the Materials Scientist in Forensic Engineering” University of Florida, MSE Department Graduate and Faculty Seminar, October 1, 2002.

“The Role of the Forensic Engineer” Florida Association of Criminal Defense Lawyers, December 10, 2002, Jacksonville, FL.

“Engineering Risk: A Matter of Life and Death” University of Florida, MSE Department Graduate and Faculty Seminar, October 25, 2005

“Materials Analysis in Forensic Engineering Investigations” GDLA Annual Meeting, June 7-10, 2012, Ponte Vedra, Florida

## **PUBLICATIONS**

P.D Eason, J.A. Fewkes, S.C. Kennett, T.J. Eden, K. Tello, M.J. Kaufman, “Structure Processing Property Relationships in Bulk Copper Produced by Cold Gas Dynamic Spray Processing,” Proceedings of the 2010 International Conference on Powder Metallurgy & particulate Materials, June 2010

P.D. Eason, M.J. Kaufman, “Impurity Effects on the Environmental Stability of Powder Processed Intermetallic Alumino-Silicide Compounds,” Journal of the Materials Research, Vol. 20, No.10, October 2005

P.D. Eason, "The role of Engineering Risk Assessment in Public Safety, " IDS Emergency Management 2004, Online Conference, June 2004.

Dissertation: "Processing, Phase Equilibria and Environmental Degradation of the Mo(Si, Al)<sub>2</sub> Intermetallic Compound," – University of Florida, December 1998.

P.D. Eason, E.N. Ross, L.A. Dempere and M.J. Kaufman, "Processing, Microstructure and Mechanical Properties of Mo Silicates and their Composites," Transactions of the Nonferrous Metals Society of China – Special Issue, Vol. 9, Supplement 1, June 1999, page 1-12 and Proceedings from the 3<sup>rd</sup>, International Workshop of Ordered Intermetallic Alloys and Composites

P.D. Eason, K.L. Jolly and M.J. Kaufman, "Reassessment of the Mo-Si-Al Ternary Isotherm at 1400°C," Ceramic Engineering and Science Proceedings, Vol. 19, No. 4, June 1998.

J.S. Jayashankar, E.N. Ross, P.D. Eason and M.J. Kaufman, "Processing of MoSi<sub>2</sub> Based Intermetallics," Materials Science and Engineering, A239-240 (1997), pp. 485-492.

E.N. Ross, P.D. Eason and M.J. Kaufman, "Processing of Low Silica MoSi<sub>2</sub> – Based Compounds Using Carbon and Aluminum Additions," Proceedings of TMS Fifth Annual conference on Processing of Advanced Materials, Fall 1996.

## **EXAMPLES OF FORENSIC INVESTIGATIONS AND FAILURE ANALYSIS PERFORMED**

- Evaluation of coil and boiler tube failures in ammonia absorption refrigeration systems.
- Evaluation of corrosion, stress corrosion and environmental stress cracking failures in metallic (aluminum, copper, black iron and galvanized steel) and polymeric (PVC, CPVC, PP and HDPE) water distribution systems - HVAC cooling, irrigation and potable water supplies.
- Assessment of toilet tanks and components (float valves and coupling devices) and mechanical and environmental stress cracking failures.
- Evaluation of mechanical and corrosion related failures in metallic and composite polymer orthopedic surgical implants, including prostheses and fixation devices.
- Evaluation of corrosion failures in fire sprinkler systems, both CPVC (chlorinated polyvinylchloride) and black iron water release elements (sprinkler heads) and associated valves and coupling devices.
- Determination of electrical fire causation/origin based on micro-structural characterization of electrical cables and wiring.
- Evaluation of failures resulting in personal injury from the use and abuse of ladders, both A-frame and extension ladders.
- Evaluation of failures in chairs, residential and workplace, including wheelchairs (suspension frames and wheel axle components).
- Assessment of failures in ceramic materials, including conventional clay based and silica based coated and uncoated window glasses.
- Evaluation of fiber reinforced composite mechanical failures resulting from manufacturing and service related defects.
- Assessment of mechanical and corrosion related failures in pressure vessels and pipelines

including steam generation and equipment (boilers and nuclear reactors) and heat exchangers.

- Evaluation of failures in mechanical fasteners, such as bolts and screws, and lifting equipment including, wire rope and attachments.
- Assessment of industrial process explosion origin and cause.
- Evaluation of fire cause and origin for domestic, commercial and industrial sites.
- Evaluation of fire cause and origin associated with product failure issues.
- Assessment of welding, soldering and brazing failures.
- Evaluation of vehicle component failures.
- Evaluation of materials specification and contamination analysis.