

Keith E. Wagner

Title: Senior Scientist

Education:

Advanced Microscopy Studies, Lehigh University, 1993
B.S. Physics and Physical Metallurgy, Pennsylvania State University, 1985

Employment History:

1990-Present RJ Lee Group, Inc.
1989-1990 Westmoreland Mechanical Testing and Research, Research Metallurgist
1987-1989 Booz-Allen and Hamilton, Inc., Senior Engineer
1985-1987 Comsat Laboratories, Technician

Summary:

- » Expertise in failure analysis techniques applied to materials and electronics for commercial and military applications
- » Evaluation and failure analysis of metallic joining techniques including welding, brazing, and soldering
- » Extensive knowledge of optical and electron microscopy, X-ray spectral analysis techniques, mechanical properties testing, and analytical techniques for materials characterization
- » Skilled in industrial problem solving for manufacturing processes and material interactions related to the automotive, aviation, electronics and biomedical industries
- » Extensive experience in the evaluation of environmental and material effects on commercial, residential and military system components including consumer products and household items, electrical, plumbing and HVAC systems
- » Conducted numerous evaluations of corrosion and the effects of chlorine gas on various materials including metals, ceramics and plastics
- » Set up and ran chloride salt bath stress corrosion and chloride salt bath exfoliation testing facilities
- » Evaluation of World Trade Center (WTC) dust and corrosive properties and effects on mechanical, electrical and plumbing systems as well as on computer and communications systems in major commercial properties
- » Developed specialized protocols for preparation of uncommon materials and devices
- » Involved with the M1 Tank Battalion Nuclear Survivability Program including nuclear weapon effects testing and post mortem analysis of mission-critical electronic devices and material components
- » Evaluated input protection circuitry on VHSIC (very high-speed integrated circuits) devices for electromagnetic effects (EME-ESD, EMP) threshold levels
- » Experienced with total dose radiation effects testing on MOS structures and GaAs devices for space communications applications
- » Certified in SCUBA with specialty gas NITROX
- » Hazardous Waste Operations (HAZWOPER) Training
- » Held DOD Secret Clearance with NATO access

Honors, Awards, Fellowships & Current Memberships:

- » ASM International
- » American Welding Society
- » Electronic Device and Failure Analysis Society
- » National Research Council (TRB Committee A2E06, appt., 1995-2001)
- » SAS, Washington, D.C., Chapter Treasurer (1986-1987)

Publications & Presentations

Casuccio, G. S., K. E. Harris, S. F. Schlaegle, **K. E. Wagner**, J. D. Baker, M. P. Nelson, D. Martello, "Characterization of PM2.5 Using the Raman-SEM," Presented at the International Conference on Air Quality IV, EERC Conference, Arlington, VA; September 2003.

Thaulow, N., R. J. Lee, **K. E. Wagner**, S. Sahu, "Effect of Calcium Hydroxide Content on the Form, Extent, and Significance of Carbonation," Presented at the Calcium Hydroxide Workshop, Anna Maria Island, Florida, November 2000, Published in The American Ceramic Society, pp. 191-202, 2001.

Wagner, K. E., "Aluminum Replacement of Steel in Automotive Applications," Presented at the Collision Industry Conference, Orlando, FL., December 2000.

Wagner, K. E., "Workshop on Air Void Analysis," Instructor at the 19th Annual International Cement Microscopy Association Conference, Cincinnati, OH, April 1997.

Wagner, K. E., J. M. Pavlick, F. C. Schwerer, "An Image-Aware Management System for Spectroscopic Data," Presented at the American Vacuum Society Annual Meeting, Minneapolis, MN, October 1995. Also presented at the Instrumentation Analysis Society Meeting, Pittsburgh, PA, March 1996, and Published in American Laboratory, Vol. 29, No. 22, pp. 34-39, November 1997.

Wagner, K. E., J. P. Skalny, "Comparison of Air-Void Data Obtained by Manual and Automated Instrumental Analyses," Presented at the American Concrete Institute Convention, San Francisco, CA, March 1994.

Wagner, K. E., E. A. Draper, J. P. Skalny, "Use of Complementary Imaging Techniques in Concrete Deterioration Studies," Published in the MRS Bulletin, March 1993.

Wagner, K. E., R. J. Lee, "Microscopic Crack Pattern Evaluations on Hardened Concrete — Comparison Between Sound and Deteriorated Members," Presented to the American Ceramic Society 95th Annual Meeting and Exposition, Cincinnati, OH, April 1993.

Draper, E. A., **K. E. Wagner**, J. P. Skalny, "On some microstructural aspects of concrete deterioration," Published in Materiales de Construccion, Vol. 43, No. 232, pp. 5-20, 1993.

Porankiewicz, B., **K. E. Wagner**, "Chemical Wear of Carbide Tools When Milling Particle Board," Published in the Proceedings of the VIIIth International Conference on Tools, Miskolc, Hungary, August 1993.

Porankiewicz, B., M. Z. Moroz, **K. E. Wagner**, "The Chemical Corrosion of Carbide Cutting Edge When Milling Melamine Coated Particle Board," Published in Proc. of XI Wood Machining Seminar, Norwegian Wood Technology Institute, pp. 515-519, Oslo, 1993.

Lee, R. J., A. J. Schwoeble, **K. E. Wagner**, Y. Jie, "Integration of Multiple Advanced Analytical Techniques to Study Alkali Silica Reactivity in Concrete Railroad Ties," Presented at the Engineering Foundation Conference, Advances in the Production & Utilization of Cement-Based Materials, Potosi, MO, July 1991.

Lee, R. J., A. J. Schwoeble, **K. E. Wagner**, J. Yuan, "A Combination of Analytical Methods for Identification of Reactive Aggregate in Concrete Rail Road Ties," Published in the Proceedings of the Engineering Foundation Conference on Concrete Processing and Use, 1991.

Pierce, D., W. L. Shiley, S. Wong, **K. E. Wagner**, "Electrical Overstress Testing of a 256K UVEPROM to Rectangular and Double Exponential Pulses," Published in the Proceedings of the EOS/ESD Symposium, 1988.