

Neal W. Hanke, P.E.
Metallurgical and Materials Engineer

Materials Evaluation and Engineering, Inc.
13805 1st Avenue N, Suite 400
Plymouth, MN 55441-5447
Phone: (763) 449-8870
FAX: (763) 449-8699
Email: nhanke@mee-inc.com

SUMMARY

Metallurgical and Materials engineer with experience in failure analysis, materials characterization, product evaluation, and research and development. Proficient in evaluation of failures in metallic and nonmetallic materials by fracture, wear, corrosion, thermal damage, or other degradation.

EDUCATION AND PROFESSIONAL CERTIFICATIONS

Bachelor of Science, Materials Engineering, 2011
Iowa State University, Ames, Iowa

Registered Professional Metallurgical and Materials Engineer, 2016 - present
Minnesota License: 54222
Iowa License: P26908
Ohio License: PE.87212
Illinois License: 62.073637
Wisconsin License: 49024-6

WORK EXPERIENCE

August 2012 to Present

Materials Evaluation and Engineering, Inc.
Plymouth, MN

Current Position: Principal Materials Engineer / Vice President

Past Positions: Materials Engineer (2012 - 2016), Senior Materials Engineer (2017 - 2023)

- Product support through failure analysis of industrial components.
- Product development through component testing and material selection.
- Manufacturing support through consultation on materials-related problems.
- Materials engineering evaluation for forensic investigation.

Summers of 2006 to 2011

Materials Evaluation and Engineering, Inc.
Plymouth, MN

Materials Engineering Technician

- Assisted engineers in conducting failure analyses and other materials engineering investigations.
- Prepared metallographic specimens and performed routine metallurgical examinations using light microscopy.
- Performed routine mechanical testing.

PROFESSIONAL AFFILIATIONS / COMMUNITY ACTIVITIES

- ASM International Member: 2007 - present
 - Reviewer for ASM Handbook Volume 11: Failure Analysis and Prevention
- Peer Reviewer for the Journal of Failure Analysis and Prevention: 2021 - present
- Minnesota ASM Materials Camp Mentor: 2012 - present
- National Society for Professional Engineers (MN Chapter): 2022 - present
- National Academy of Forensic Engineers - Associate Member: 2022 - present

COURSES/SEMINARS - INSTRUCTED/PRESENTED

- “Complex Fire Investigation - Materials Analysis” 2024 Minnesota Association of Arson Investigators - Annual Training Conference. May 1, 2024. St. Cloud, MN.
- “Electrical Systems and Surveys for the Fire Investigator.” International Association of Arson Investigators - Illinois Chapter Fire Investigation Training Conference. September 20, 2023, Peoria, IL.
- “Complex Fire Investigation - Materials Analysis for Electrical Systems.” International Association of Arson Investigators - International Training Conference. April 24, 2023. Cherokee, NC.
- Hanke, N. and Pagels, J., “Motor Vehicle Fluid Heater Failures.” 2023 Minnesota Association of Arson Investigators - Annual Training Conference, March 29, 2023. St. Cloud, MN.

- Svare, M. and Hanke, N., “Forensic Examination of Post Fire Damaged Electrical Conductors by Quantitative Measurement to Increase Reliability of Electrical Fault Evaluations.” National Academy of Forensic Engineers - Winter Conference 2023, January 7, 2023.
- “Materials Science and Metallurgy for Fire Investigators.” Louisiana Association of Arson Investigators Annual Training Conference. December 1, 2022.
- “Determination of Nitinol Transformation Temperatures by the Bend and Free Recovery Method,” Minnesota ASM Materials Characterization Seminar. February 28, 2018, Brooklyn Park, MN
- “Metallurgical Analysis for Fire and Explosion Investigation,” International Association of Arson Investigators - International Training Conference. April 11, 2017, Las Vegas, NV
- “The Role of Metallurgical Analysis for Fire and Explosion Investigation,” International Association of Arson Investigators - International Training Conference. April 2016, Orlando, FL
- Hallman, D. and Hanke, N., “Vehicle Battery Cable Arcing v. Melting Analysis,” Paper presented at ISFI Conference 2016. Scottsdale, AZ.

COURSES/SEMINARS - TRAINING ATTENDED

- National Academy of Forensic Engineers Summer Conference 2023, July 15 - 16, 2023. Kansas City, MO.
- National Academy of Forensic Engineers Winter Conference 2023, January 7-8, 2023. San Antonio, TX.
- Louisiana Association of Arson Investigators Annual Training Conference, November 30, 2022. Baton Rouge, LA.
- National Academy of Forensic Engineers Winter Conference 2022. January 8, 2022. Tucson, AZ.
- National Academy of Forensic Engineers Winter Conference 2021. January 9-10, 2021. Remote Attendance.
- ASM Annual Symposium - New Materials and Processing Technologies. February 20, 2019. Brooklyn Park, MN.
- ASM Annual Symposium - Materials Retrospect: 100 Years of Advancement. February 19, 2020. Brooklyn Park, MN.
- Warning - This is a Test: Whitmore Fire Seminar. October 12, 2018. Lakeville, MN .
- NACE Central Area Conference. August 6-8, 2018. Omaha, NE.

- Fundamentals of Residential Electrical Systems and Advanced Arc Fault Circuit Analysis For The Forensic Fire Investigator - 40-hour course at MSD Engineering. April 9 - 13, 2018.

PUBLICATIONS

- Hanke, Neal W. (2013). Evaluation of a Failed Water Wall Boiler Tube. *Journal of Failure Analysis and Prevention*, Vol 12 (No. 1), p 11-15, 10.1007/s11668-011-9522-4.
- Svare, M., Nic Daeid, N., & Hanke, N. W. (2023). Forensic Examination of Post-Fire Damaged Electrical Conductors by Quantitative Measurement. *Journal of the National Academy of Forensic Engineers*, 40(1), 41-56.

RECENT DEPOSITION AND TRIAL EXPERIENCE

Available upon request.