

WILLIAM KANE, PH.D., P.E.

Vice President



Summary

William Kane joined the Philadelphia Forensics practice at Thornton Tomasetti in 2021, bringing 15 years of experience in failure analysis and prevention. He is a recognized expert in materials and mechanical engineering with concentrations in metallurgy, strength and performance of materials, and environmental degradation. Dr. Kane has consulted on a wide range of issues including medical devices and implants, utility and infrastructure components, consumer products, welding, buildings and structures, construction equipment, piping, industrial and pharmaceutical production equipment, railcars, and automotive components. He has experience in fracture mechanics, microscopy, mechanical testing, corrosion and materials selection. Dr. Kane has taught at the University of Pennsylvania and Drexel University, and has presented extensively in his field, as well as contributed to multiple publications.

Areas of technical expertise

- Root Cause Failure Analysis
- Environmental Degradation of Materials
- Materials Science and Engineering

Education

- Ph.D., Materials Science & Engineering, 2005, University of Pennsylvania
- M.S., Materials Science & Engineering, 2003, University of Pennsylvania
- B.S., Materials Science & Engineering, 2001, University of Pennsylvania

Registrations

- Licensed Professional Engineer in DE, MD, NJ, NY, PA, & VA
- Certified Welding Inspector (CWI), American Welding Society
- Certified ASNT ACCP Level II, American Society for Nondestructive Testing

Professional activities

- Member, ASM International
- Member, American Welding Society
- Member, ASTM International
- Board Member, Physical Sciences Technical Advisory Committee, Ben Franklin Technology Partners (BFTP)
- Lecturer, University of Pennsylvania, 2009-2018
- Adjunct Faculty, Drexel University, 2010-2012

Select project experience

Root cause failure analysis

Philadelphia Criminal Justice Center Elevator Failure,

Philadelphia, PA.* Mechanical and metallurgical investigation to determine the cause of an elevator accident.

Arthroscopic Surgery Tool Failure, Ephrata, PA.* Metallurgical analysis of a fractured arthroscopic shaver tool to determine the cause of the failure.

Cervical Plate System Failure Analysis, Philadelphia, PA.* Metallurgical analysis of fractured screws from a medical device to determine the cause of the fracture.

Petroleum Tanker Rupture, Kaysville, UT.* Investigation into the rupture of a DOT tanker that was involved in a motor vehicle accident.

Six Flags Chiller Rollercoaster Wheel Failure, Jackson, NJ.* Investigation into the failure of welded components on an amusement park ride that failed during operation.

Huntington Station Crane Collapse, Alexandria, VA.* Mechanical and metallurgical investigation to determine the cause of a tower crane collapse.

Environmental degradation of materials

Pharmaceutical Water Storage Tank Failure, Philadelphia, PA.* Metallurgical investigation to determine the cause and extent of cracking in a 22,000-gallon distilled water storage tank.

Naudain Street Gas Explosion, Philadelphia, PA.* Metallurgical investigation to determine the cause and extent of pipe corrosion that contributed to a gas leak.

Materials science & engineering

Great Wolf Lodge Premises Investigation, Scotrun, PA.* Materials evaluation of the platform surfaces on an indoor water park feature.

*Denotes work performed with previous employer.

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Lacrosse Ball Usability Study, Philadelphia, PA.* Materials evaluation examining the effects of aging on lacrosse balls.

Boiler Fitness-for-Service Assessment, Philadelphia, PA.* Investigation to determine the cause of cracking and remaining structural integrity of a steam boiler superheater header.

Sworn testimony

Trial experience

Wright v. Residence Inn Philadelphia, et al,* Court of Common Pleas, Philadelphia County. 2017.

Osmun v. Pat's King of Steaks, et al,* Court of Common Pleas, Philadelphia County. 2017.

Steinman v. Spinal Concepts, Inc.,* U.S. District Court, Western District of New York. 2013.

State Farm Fire & Casualty Co. v. Carroll Water Systems, Inc., et al,* In the District Court of Maryland for Carroll County. 2012.

Deposition experience

GATX Corp. v. Georgia Power Co.,* U.S. District Court for the Northern District of Georgia. 2021.

Malone v. David Elsbury Jr., et al,* In the Circuit Court of Harrison County, West Virginia. 2020.

Sherrick v. Sunrise Medical, et al,* Court of Common Pleas, Franklin County, OH. 2020.

Jeffrey Moxham, et al v. M&J Overhead Door LLC, et al,* Superior Court Judicial District of Danbury. 2019.

Lopez v. Ryder Truck Rental, Inc., et al,* Superior Court of New Jersey, Essex County. 2018.

Chad C. Evans, et al. v. Globus Medical, Inc., et al,* In the Circuit Court of Baltimore County, Maryland. 2016.

IPSCO Tubulars, Inc. v. Ajax Tocco Magnethermic Corp.,* U.S. District Court for the Eastern District of Arkansas. 2013.

Select papers, lectures and publications

"Preservation and Preparation of Fracture Specimens," ASM Handbook, Volume 12 – Fractography, ASM International. In press as of Sept 2021 (author)

"Tibial tray fracture in a modern prosthesis with retrieval analysis," *Arthroplast Today* 2018; 4:143-147 (co-author)

"Retrieval and clinical analysis of distraction-based dual growing rod constructs for early-onset scoliosis," *The Spine Journal* 2017, 17(10): 1506-1518 (co-author)

"Preserving Evidence in a Product Liability Case: Focus on Medical Devices," American Bar Association Litigation Group, Expert Witnesses Committee Article, February 21, 2017 (co-author)

"Mechanical Properties and Their Measurement," ASM International Metallurgy for the Non-Metallurgist course, Coatesville, PA, November 2014 (author)

"Failure Analysis for Medical Device Engineers," ASM International, Materials Park, OH, August 2014 (author)

"Collapse of Jet Center Hangars Under Snow Load," 2014 Structures Congress, American Society of Civil Engineers, Boston, MA, April 2014 (co-author)

"Method of characterizing fretting and corrosion at the various taper connections of retrieved modular components from metal-on-metal total hip arthroplasty. ASTM STP1560: Metal-On-Metal Total Hip Replacement Devices," ASTM International, 2013 (co-author)

"In vivo deformation, surface damage, and biostability of retrieved dynesys systems," *Spine*, November 2010; 35(23):1310-E1316 (co-author)

"Brittle intergranular fracture of a Ni-based superalloy at high temperatures by dynamic embrittlement," *Materials Science and Engineering A* 2004; 387-389:409-413, December 15 (co-author)

"MSE 495/496 – Senior Design," University of Pennsylvania, 2012-2018, Lecturer

"MSE 555 – Environmental Degradation of Materials," University of Pennsylvania, 2012-2016, Lecturer

"Failure Analysis for Medical Device Engineers," ASM International, 2017, Lecturer

"Fretting and corrosion at the taper connections of retrieved modular components from metal-on-metal total hip arthroplasty," Talk 13, Symposium on Metal-on-Metal Total Hip Replacement Devices, Phoenix, AZ, May 8, 2012 (co-presenter)

"Oxygen-induced dynamic embrittlement in nickel-based superalloys, Interfacial Engineering for Optimized Properties III," *MRS* 2004; 819:111-120 (co-presenter)

CONTACT

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