

Eduardo Mari

M.Sc., P.Eng



1336 Sandhill Dr.
Ancaster, ON L9G 4V5

EDUCATION

Master's Degree in Materials Science and Engineering (2009)
State University of New York, Stony Brook, New York, USA

Bachelor's Degree in Materials Engineering (2002)
Simon Bolivar University, Caracas, Venezuela

TECHNICAL AND PROFESSIONAL AFFILIATIONS

Canadian Standards Association (CSA) B139 - Past Technical Committee Member
National Association of Subrogation Professionals (NASP)
National Association of Corrosion Engineers (NACE)
Professional Engineers of Ontario (PEO)
American Society of Materials (ASM)

PROFESSIONAL EXPERIENCE

Professional materials and metallurgical engineer with over 20 years of experience in forensic engineering investigations and failure analysis.

Lead investigator in over 1500 forensic engineering investigations and root cause failure analysis. Specialized experience in a variety of equipment, components and industrial products. Plumbing and Mechanical Systems, HVAC Systems, Fire Sprinkler Systems, Polymer Pipe Failures, Product Liability, Fuel Oil Installations, Personal Injury resulting from Mechanical Failures and Static Equipment in Oil and Gas

2016 - Present

Origin and Cause Incorporated

Forensic Engineer – Materials, Product and Equipment Failure Group

- Manage on-site failure investigations, evidence identification. Liaise with contractors and third-party experts for on-site and off-site examinations.
- Lead mechanical and materials failure investigations on a variety of engineering components. Determine the origin and cause of residential, commercial and industrial failures related to large complex failures
- Fire sprinkler system failure investigations: equipment, piping
- Personal injury investigations resulting from mechanical failures
- Materials characterization, testing and analysis
- Expert advice and technical support to clients during litigation proceedings resulting from failure investigations
- Expert witness testimony in judicial proceedings

2012 - 2016

Pario Engineering

Forensic Engineer - Materials/Metallurgical

- Fuel oil systems failure investigations resulting from corrosion, installation deficiencies and Code non-compliance issues.
- Root cause analysis of fractured/cracked products and components
- Cause and origin investigation of water escapes. Plumbing: investigation of fitting failures, piping, flexible supply lines among others
- Metallurgical investigation of metallic and plastic piping and tubing
- Failure investigation of fire suppression system and Code compliance
- Metallurgical investigation of components involved in fires

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2012

Acuren Group Inc.

Failure Analyst – Metallurgy/Materials

- Directed and conducted metallurgical projects and failure analysis investigations for various industries, e.g. Oil & Gas, Automotive, Transportation, Power Generation, Pulp and Paper, Manufacturing, Biomedical and more
- Development and management of clients to fulfill their needs for failure analysis and metallurgical projects as well as to identify business opportunities
- Lead and supervised technical laboratory staff towards the successful completion of projects and delivery to clients via written report
- Completed failure analysis proposals for TTC, MOL, OPG and other industries

2009 – 2011

University of Toronto

Centre for Advanced Coatings Technologies

Department of Materials Science and Engineering

Graduate Student (Ph.D.)

- Conducted metallurgical analysis and mechanical testing of novel structural components made from nickel-alloy-foam. These components were being developed for high temperature applications, e.g. heat exchangers, engine combustors and airfoil
- Advanced user of laboratory techniques including: light microscopy, SEM/EDX, hardness, image analysis, XRD, metallography and chemical analysis
- Interacted with industrial partners (Pratt & Whitney Canada, Plasco Energy Group and Centerline Canada) to review project requirements, testing specifications and on-site evaluations
- Provided technical support, guidance and mentoring to junior staff members and interns

2006 – 2009

Center for Thermal Spray Research

Stony Brook University, New York

- Developed strain and heat flux sensors to monitor and control the lifetime of special alloy components at high temperatures. Industry visits to complete on-site testing and development of sensors for control of coatings processes in the aerospace industry. Prepared several detailed technical reports on mechanical and thermal properties of coatings.

2006

Supermetanol (Petrochemical)

Barcelona, Venezuela (2006)

- Implemented fitness for service and root cause analysis to evaluate in-service components. Participated in the plant's risk based inspection (RBI), integrity maintenance and reliability programs. Lead several material selection processes for new valves, furnaces, tubing and process equipment. Planned, organized and performed inspections, monitored plant equipment and pipelines according to corrosion and flaw detection procedures using NDT techniques.

2002 – 2005

Center for Surface Engineering

Caracas, Venezuela

- Completed metallurgical failure analysis investigations on failed components resulting in losses in industries that included oil and gas, automotive and aerospace.

TRAINING AND EDUCATION

- Building Code: Buildings Fire Protection, Building Envelope and Building Plumbing. George Brown College, 2021
- Plastic Part Failure: Analysis, Design & Prevention, University of Wisconsin-Milwaukee, 2015
- Fire Sprinkler Inspection Training & Certification Program, Oklahoma State University, Stillwater, 2014
- Internal Auditor for ISO/IEC 17025, Canadian Association for Laboratory Accreditation Inc. (CALA), 2013
- Plastics Pipe: Failure Analysis, Environmental degradation mechanisms, Codes and Standards – Jana Laboratories, 2012
- ASNT SNT-TC-1A, Non-Destructive Testing UT-II; MT-II; PT-II, 2005

SCHOLARSHIPS

- International Thermal Spray Association (ITSA), 2010
- Japanese International Cooperation Agency (JICA) – 12 week Non Destructive Testing (NDT) training and certification at CIDESI. UT level II, MT level II, PT level II, RT Level I, Mexico, 2005
- Spanish Agency for International Development Cooperation (AECI) – Ibero-American Materials Technology, Santa Cruz, Bolivia, 2004

PUBLICATIONS AND SPEAKING ENGAGEMENTS

- Presenting Author – Forensic evaluation of ball valve failures in HVAC recirculation lines of high-rise residential buildings – Materials Science & Technology Conference (MS&T), Pittsburg, PA, 2017
- Presenting Author – Fatigue failures in farming equipment - Ontario Mutual Insurance Association - 2016
- Cause and Origin of Fuel Oil Spills – A forensic Investigation approach with a review of code and regulations, presented to insurance and adjusters in 2015
- Presenting Author – Failure of Braided Wire-Reinforced Flexible Hose due to Pitting and Stress Corrosion Cracking – Materials Science & Technology Conference (MS&T), Montreal, Quebec, 2013
- Invited Speaker – Stress Corrosion Cracking Failure of a Stainless Steel Flexible Water Connector – National Association of Corrosion Engineers (NACE), Corrosion 2013 International Conference, Orlando, Florida, 2013