On-site and lab investigation

Materials Testing & Corrosion Engineering
Failure Analysis, Risk Assessment, Corrosion Investigation, Mitigation

Featuring:
Dr. Mehrooz Zamanzadeh (Dr. Zee)
Fellow of NACE, Fellow of ASM
NACE Certified Corrosion, Coatings,
Materials Selection and Design
Cathodic Protection Specialist
Exova Pittsburgh

Exova Pittsburgh specializes in root cause failure analysis, materials testing, risk assessment and corrosion engineering. Our NACE certified corrosion and materials engineers offer on-site materials testing, inspection and risk assessment, supported by state-of-the-art laboratory testing, to identify risk or cause of failure.

Our approach enables us to identify underlying problems arising from improper materials choices, processes, environmental factors, fabrication, design, damage, quality control or other concerns.

Our primary corrosion and materials engineer, Dr. Zee, is one of the foremost experts in corrosion, coatings, materials selection/design, and cathodic protection. He is certified by the National Association of Corrosion Engineers in these areas and is an approved NACE Instructor. Our team also includes materials engineers, chemists, electrochemists, and micro-characterization specialists.

Our state-of-the-art materials testing laboratory offers a TESCAN scanning electron microscope (SEM) with 4-lens Wide Field Optics™, Ultra-High-Resolution Digital Image Acquisition with an integrated elemental dispersive system (EDAX); as well an array of other analytical testing equipment.

Exova Pittsburgh is part of Exova, one of the world’s leading providers of testing, calibration and advisory services, with over 4500 colleagues in 32 countries worldwide.

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Company Services

**Materials Testing & Corrosion Engineering**
- In-House Testing Laboratory
- Failure Analysis / Metallurgical Testing
- Paint and Coatings Testing
- SEM/EDS, FTIR, X-Ray Diffraction
- PMI Testing – Niton XRF and OES
- Electrochemical Testing
- Environmental Testing Chambers (MFG, QUV, Salt Spray)
- Petrographic Testing
- Soil Testing
- Polymers Testing

**Corrosion Risk Assessment**
- Below Grade Corrosion Detection and Risk Analysis, Minimal Excavation
- Structural Integrity Assessment
- Corrosion Rate Determinations
- Estimated Remaining Life Assessment
- Coatings Assessment
- Corrosion Mapping
- Electrochemical EIS, DC and AC Testing

**Cathodic Protection**
- NACE Certified Cathodic Protection Specialist, Engineers & Technicians
- Design, Installation and Monitoring
- Earth Bond Cathodic Protection Testing
- System Wide Cathodic Protection
- Development of CP Criteria / Design
- Internal & External Corrosion Monitoring
- CP Audits and Trouble-Shooting for Underground Assets

**Corrosion Mitigation**
- Corrosion Management Programs
- Paint / Coating Selection
- Materials Selection
- Development of Specification Requirements
- Backfill Selection
- Sensor Development
- Corrosion Mitigation Consultation

**Special Services**
- Soil Testing
- Coating System Selection for Corrosion Applications

**Data Management & GIS Mapping**
- Safe, secure access to your data in the cloud
- Real time data access
- Integrate with existing GIS and database solution
- Secure communication, global data recovery
Dr. M. Zamanzadeh, Fellow of NACE, Fellow of ASM
NACE Certified Corrosion, Coatings, Materials Selection/Design, Cathodic Protection Specialist

“For aging structures, past performance is not an indication of the future.”

Dr. Zee is a NACE Certified Corrosion Specialist with over 25 years of practical experience in corrosion engineering, materials selection and design, protective coatings, and cathodic protection. He has worked in the oil and gas, electric power utility, and other industries throughout his career, and has resolved a wide range of materials and corrosion engineering concerns for these industries including pipeline integrity assessment and failure analysis of pipeline explosions and ruptures. He has served as an expert witness with “wins” exceeding $41,000,000.00.

Dr. Zee is the Technical Director at Exova Pittsburgh and primary consultant on projects involving the gas and oil industry, electric power and nuclear energy sectors. His expertise includes Setting-Up Corrosion Risk Assessment/Corrosion Mitigation Programs for Large Energy Related Companies; Corrosion Mitigation (Coatings, Cathodic Protection, Corrosion Inhibitors, Materials Selection); Failure Analysis Root Cause Determination; Big Data Analysis; QA/QC Management; Corrosion Engineering Courses (NACE Approved Instructor).

Dr. Zee has a B.S. and M.S. in Materials Science and Engineering and a Ph.D. in Materials Science from Pennsylvania State University. He joined NIOC as a corrosion engineer upon completion of his doctoral work in 1980. In 1985 he joined Carnegie Mellon University in the capacity of a Post-Doctoral Research Associate under a corrosion grant from IBM. He holds four certifications from the National Association of Corrosion Engineers (NACE) Coatings, Materials Selection and Design Specialist and Corrosion Specialist.

Dr. Zamanzadeh is the recipient of the NACE Fellow Award (2008); ASM Fellow Award (2006); NACE Outstanding Service Award (1996), ASM Entrepreneur of the Year Award (2004), and the Colonel Cox Award for the Appalachian Underground Corrosion Short Course (2010).
7. Using Electrochemical Impedance Spectroscopy to Evaluate Corrosion Behavior on Coated Galvanized Steel in Atmospheric and Soil Exposure, Authors: Bayer, G; Zamanzadeh, M, was presented at PACE 2006: The Coatings Expo, Tampa, Florida, January 29-February 1, 2006
9. When Paint Fails on Football Stadium Seats, It’s Back to the Lab for a Post-Game Analysis, Authors: Bayer, G; Zamanzadeh, M; Journal Name: Coatings Pro; Date: January 2005
10. Laboratory and Field Investigation of Galvanized Utility Poles, Authors: Zamanzadeh, M; Kempkes, C; Aichinger, D; Riley, D, was presented at the 2006 Electrical Transmission Conference Structural Reliability in a Changing World Birmingham, Alabama, October 15-19, 2006
11. When Paint Fails on Football Stadium Seats, It’s Back to the Lab for a Post-Game Analysis, Authors: Bayer, G; Zamanzadeh, M; Journal Name: Coatings Pro; Date: January 2005
12. Failure Analysis of Paints and Coatings for Transmission and Distribution (T&D), Pipeline and Utility Structures Case Studies; Authors: Mehrooz Zamanzadeh, George T. Bayer; presented at SSPC Conference 2/5/15
Patent Examples


Training Seminar Examples

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<tr>
<th>Company</th>
<th>Description</th>
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<tr>
<td>Kern River Gas Transmission</td>
<td>Corrosion Engineering &amp; Cathodic Protection for Gas Transmission Pipelines</td>
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<tr>
<td>Dominion Cove Pont LNG</td>
<td>Training seminars (4) in Lusby MD for OQ education: corrosion, coatings, materials selection and design, cathodic protections.</td>
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<tr>
<td>Al Hayathem, Kuwait</td>
<td>Training seminars for four oil and gas companies: corrosion, coatings, materials selection and design, cathodic protections.</td>
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<td>San Diego Gas &amp; Electric</td>
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<tr>
<td>Kansas City Power &amp; Light</td>
<td>Training seminars to plant electricians and electrical engineers: corrosion, coatings, materials selection and design, cathodic protections.</td>
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Registered Company Name: Exova (formerly MATCO Services, Inc.)
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Exova Web Site Pages:

Client Examples

- American Airlines / US Airways
- Eaton Corporation
- Columbia Gas
- Mitsubishi
- Dominion
- Pacific Gas and Electric
- GE Hitachi
- Kern River Gas Transmission
- San Diego Gas & Electric
- NiSource

Key Contacts

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