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Engineering & Scientific Consulting

Noah Budiansky, Ph.D., P.E.

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Professional Profile

Dr. Budiansky's expertise is in metallurgy and corrosion science and engineering. He specializes in failure analysis, material degradation, failure prevention, material selection, material characterization, and laboratory testing in the areas of implantable medical devices, portable electronic devices and consumer appliances, gas pipelines and water distribution, chemical processing and food production, paints and coatings, mechanical fasteners, and building and structures.

Dr. Budiansky has conducted research and corrosion failure analyses involving uniform corrosion, localized corrosion, stress corrosion cracking, hydrogen embrittlement, fretting corrosion, formicary corrosion, graphitic corrosion, and galvanic corrosion.

Dr. Budiansky has extensive experience solving complex corrosion problems using AC and DC electrochemical techniques, accelerated exposure techniques (environmental exposure and accelerated environments), material characterization techniques (microscopy and elemental analysis), metallographic examination, fractography, on-site investigations, and failure analysis.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of Virginia, 2007

M.S., Materials Science and Engineering, University of Virginia, 2003

B.S., Environmental Sciences, University of Massachusetts, Amherst, 1997

Marcel Pourbaix Second Place Prize for Best Poster in Corrosion Science "Material Parameters Associated With Cooperative Spreading Of Localized Corrosion on Heterogeneous Materials," CORROSION/06 Conference Student Poster Session, National Association of Corrosion Engineers, San Diego, CA, 2006

Electrochemical Society Corrosion Division Student Travel Grant for the 3rd International Symposium on Pits and Pores: Formation, Properties and Significance for Advanced Materials, The Electrochemical Society, Honolulu, HI, 2004

Marcel Pourbaix First Place Prize for Best Poster in Corrosion Science, "Origins of Persistent Interactions Among Localized Corrosion Sites Investigated Using Experimental Electrode Arrays," CORROSION/02 Conference Student Poster Session, National Association of Corrosion Engineers, Denver, CO, 2002

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Licenses and Certifications

Professional Engineer, New York, #099471

NACE - Certified Coating Inspector Level 1 Certification

NACE Certified Corrosion Technician

Prior Experience

Senior Research Technician, W.R. Grace Construction Products Division, 1997-2000

Geotechnical Laboratory Technician, American Reclamation Inc./Materials Technology Center, 1995-1997

Professional Affiliations

ASM International

- Chairperson Central Massachusetts Chapter, 2013-2014
- Vice Chairperson Central Massachusetts Chapter, 2012-2013

Electrochemical Society (active member)

National Association of Corrosion Engineers (active member)

Patents

Patent 6,277,191: Air Entrainment with Polyoxyalkylene Copolymers for Concrete Treated With Oxyalkylene SRA, August 21, 2001

Patent 6,648,962: Micro-Granulose Particulates, November 18, 2003

Publications

Lemberg JA, Budiansky N, Colella F, Caligiuri R. Corrosion of newly commissioned stainless steel beer fermentation and aging vessels. J Fail. Anal. and Preven. 2026; 1–17.

Verghese PM, Budiansky ND, Ledwith P, Bauer D. Residue induced product failures - Microanalysis. Microscopy and Microanalysis 2016;22(S3): 1730-1731.

Budiansky ND, Dennies DP, Forman J, Wong D, Tucker J. Computed X-ray tomography of powder metallurgy product for rapid, quantitative size and shape distribution analysis. Microscopy and Microanalysis 2016;22(S3): 1756-1757.

Budiansky ND, Forman J, Van Der Schijff O. The Role of Computed X-ray Tomography in a Metallurgical Failure Analysis. Microscopy and Microanalysis, 2015: 21(S3): 445-446.

Snyder J, Engel A, White K, Budiansky N, Smith JM. Left atrial appendage occlusion device: Evaluation of surgical implant success and in vivo corrosion performance. Surgical Science, 2012; 3(1): 28-33.

Jain S, Budiansky N, Hudson J, and Scully J. Surface spreading of intergranular corrosion on stainless steels. Corrosion Science , 2010; 52(2):873-885.

Persaud-Sharma D, Budiansky ND, McGoron A. Biocompatibility assessment of novel bioresorbable alloys Mg-Zn-Se and Mg-Zn-Cu for endovascular applications: In-Vitro Studies. Journal of Biometrics, Biomaterials & Tissue Engineering 2013; 17(25-43).

Persaud-Sharma D, Budiansky ND. In-vitro degradation behavior of ternary Mg-Zn-Se and Mg-Zn-Cu alloys as biomaterials. Journal of Biometrics, Biomaterials & Tissue Engineering 2013; 18(1):25-43.

Persaud-Sharma D, Budiansky ND, McGoron A. Mechanical properties and tensile failure analysis of novel bio-absorbable Mg-Zn-Cu and Mg-Zn-Se alloys for endovascular applications. Metals (Basel) 2013; 3(23-40).

Cong H, Bocher F, Budiansky ND, Hurley MF, Scully JR. Use of coupled multi-electrode arrays to advance the understanding of selected corrosion phenomena. Journal of ASTM International 2007; 4(10).

Cong H, Budiansky ND, Scully JR. Use of coupled electrode arrays to elucidate copper pitting as a function of potable water chemistry. CORROSION/07, Paper #07392, Nashville, TN, 2007.

Budiansky ND, Bocher F, Cong H, Hurley MF, Scully JR. Use of coupled multi-electrode arrays to advance the understanding of selected corrosion phenomena. CORROSION/06, Paper #06677, NACE, San Diego, CA, 2006.

Cooper KR, Smith M, Budiansky ND. Development of a multielectrode array impedance analyzer for corrosion science and sensors. CORROSION/06, Paper #06674, NACE, San Diego, CA, 2006.

Scully JR, Budiansky ND, Organ L, Mikhailov AS, Hudson JL. Cooperative spreading of pit sites as a new explanation for critical threshold potentials. Passivity-9, Elsevier B.V, Paris France, 2005.

Budiansky ND, Organ L, Hudson JL, Scully JR. Detection of interactions among localized pitting sites on stainless steel using spatial statistics. Journal of Electrochemical Society 2005; 152(4):B152.

Budiansky ND, Organ L, Mikhailov AS, Hudson JL, Scully JR. Cooperative spreading of pit sites as an additional explanation for critical thresholds. Proceedings, 3rd International Symposium on Pits and Pores: Formation, Properties and Significance for Advanced Materials, The Electrochemical Society, Honolulu, HI, 2004.

Punckt C, Bolsher M, Rotermund HH, Mikhailov AS, Organ L, Budiansky ND, Scully JR, Hudson JL. Sudden onset of pitting corrosion on stainless steel as a critical phenomenon. Science 2004; 305:1133-1136.

Budiansky ND, Hudson JL, Scully JR. Origins of persistent interactions among localized corrosion sites. Journal of the Electrochemical Society 2004; 151(4):B233.

Budiansky ND, Hudson JL, Scully JR. Origins of persistent interactions among localized corrosion sites. Critical factors in localized corrosion IV. Symposium in Honor of Hans Böhni, Virtanen S, Schmuki P, Frankel GS (eds), Electrochemical Society Proceedings, Vol. 2002-24, pp. 133, 2002.

Invited Talks and Lectures

Budiansky ND, Forman J, Koutsoukis T, Kreuzer S, Spray R. Characterization of Recylced Additive Manufacturing Product. TMS 2018, Phoenix, Az.

Budiansky ND, Van Der Schijff O. Are All Supervisory Gases the Same? - An Electrochemical

Perspective. NACE 2018 Technical Committee Meeting TEG 159X, Phoenix, Az.

Budiansky ND, Forman J, Wong D, Tucker J, Dennies DP. Computed x-ray tomography of powder metallurgy product for rapid, quantitative size and shape distribution analysis. M&M 2016, Columbus, OH.

Verghese PM, Budiansky ND, Ledwith P, Bauer D. Residue induced product failures - Microanalysis. M&M2016, Columbus, OH.

Stern MC, Budiansky ND, Somandepalli V, Reza A, Myers TJ. Accidents during turnarounds, cleanings, and other infrequent operations. AIChE 2016 Spring Meeting & 12th Global Congress on Process Safety.

Budiansky ND, Van Der Schijff O, Forman J. The role of computed x-ray tomography in a metallurgical failure analysis. M&M 2015, Portland, OR.

Budiansky ND, Trenkle J, Verghese P. Evaluating the role of thread compounds and assembly in stress corrosion cracking of brass fittings. MS&T 2014.

Budiansky ND, Trenkle J, Verghese P. Detection of sub-surface corrosion by computed x-ray tomography. MS&T 2014.

Budiansky ND, Trenkle J, Verghese P. The fracture of brass gas line fittings: Cause or Consequence of Fire. MS&T 2013.

White K, Horn Q, Singh S, Spray R, Budiansky N. Thermal stability of lithium-ion cells and functions of chemistry, design and energy. Lithium Mobile Power, November 2010.

Budiansky ND, Bocher F, Cong H, Hurley MF, Scully JR. Use of coupled multi-electrode arrays to advance the understanding of selected corrosion phenomena. Corrosion/06, National Association of Corrosion Engineers, Paper #06677, San Diego, CA, 2006.

Budiansky ND, Organ L, Mikhailov AS, Hudson JL, Scully JR. Cooperative spreading of pit sites as an additional explanation for critical thresholds. 3rd International Symposium on Pits and Pores: Formation, Properties and Significance for Advanced Materials, The Electrochemical Society. Honolulu, HI, October 3-8, 2004.

Budiansky ND, Organ L, Hudson J, Scully J. Cooperative interactions during localized corrosion processes: Experiments, analysis and modeling. DOE Contractor Meeting, Ohio State University, September 2003.

Budiansky ND, Hudson JL, Scully JR. Origins of persistent interactions amongst localized corrosion sites. W.R. Grace, Inc., MA, May 2003.

Budiansky ND, Hudson JL, Scully JR. Origins of persistent interactions among localized corrosion sites. Critical factors in localized corrosion IV symposium in honor of Hans Bohni, Electrochemical Society, Salt Lake City, UT, October 21, 2002.

Poster Sessions

Budiansky ND. Material parameters associated with cooperative spreading of localized corrosion on heterogeneous materials. CORROSION/06, National Association of Corrosion Engineers, San Diego, CA, 2006.

Budiansky ND Scully JR. Initiation and propagation of IGC by cooperative interactions on sensitized stainless steel. Gordon Research Conference on Aqueous Corrosion, Colby-Sawyer College, New London, NH, 2004.

Budiansky ND and Scully JR. Origins of persistent interactions among localized corrosion sites investigated using experimental electrode arrays. Gordon Research Conference on Aqueous Corrosion, Colby-Sawyer College, New London, NH, 2002.

Budiansky ND. Origins of persistent interactions among localized corrosion sites investigated using experimental electrode arrays. National Association of Corrosion Engineers, Denver, CO, 2002.

Deposition & Trial Testimony

Brody v Simpson Development Corp. et al.. United States District Court for the District of Vermont. State of Vermont. Civil Action No. 2:05-cv-293, October 2007.

The Deacons of First Baptist Church in Dorchester v Boston Water and Sewer Commission and P. Gioioso & Sons, Inc.. Commonwealth of Massachusetts. Civil Action No. 07-2974-B, 2011.

Whirlpool v ZIM. Chicago, IL. Deposition (10/21/2011) and Arbitration (11/14/2011).

New Bern v R.H. Shepard. Commonwealth of Massachusetts, Civil Action No. BRCV2008-00510-A. Deposition (11/2012).

Debra Harris and Barbara Stark v Nordyne, LLC. United States District Court in and For the Southern District of Florida Miami Division.Case No. 1:14-cv-21884-BB. Deposition (12/1/2015).