

GREGORY J. MOROSE

PROFESSIONAL EXPERIENCE

UNIVERSITY OF MASSACHUSETTS Lowell, MA 2002 - Present
TOXICS USE REDUCTION INSTITUTE
Research Manager

Performed and managed research in the areas of alternatives assessment, toxics use reduction, materials development, and nanotechnology. Examples of research undertaken include the following:

- Developed an alternatives assessment methodology to evaluate the environmental, human health, technical performance, and financial considerations for companies transitioning to less toxic materials. Conducted alternatives assessments for products containing toxic materials including: mercury, lead, phthalates, radioactive material, hexavalent chromium, solvents, detergents, and brominated flame retardants.
- Project manager for an initiative funded by the U.S. EPA to help New England companies in the electronics industry transition to lead-free and halogen-free electronics assembly. The project included the design, fabrication, assembly, and testing of lead-free printed wiring boards to evaluate various lead-free materials and manufacturing processes. Total funding and industry in-kind contributions raised for this initiative was \$1.5 million.

COLLEGE OF HEALTH SCIENCES 2013 – Present
Research Professor

Teach courses in the Work Environment Department in the areas of life cycle assessment, sustainable product design, green manufacturing, alternatives assessment, sustainability, and toxics use reduction.

LOWELL CENTER FOR SUSTAINABLE PRODUCTION 2012 – Present
Steering Committee Member

Assist with developing and implementing the strategic plan, as well as providing oversight for policy, Center personnel, university relations, stakeholder relations, and financial management.

PURE STRATEGIES, LLC Gloucester, MA 2010 - 2013
Sustainability Consultant

Responsible for providing life cycle assessment, sustainable product design, and corporate sustainability strategy services for companies in various industry sectors. Examples of projects include:

- Conducted life cycle assessments for several companies including food products, food packaging, water filtration equipment, toys, pallets, and pharmaceutical processing equipment.
- Assisted a Fortune 100 company with developing a strategy to integrate design for environment practices into their overall corporate sustainability program.
- Analyzed the life cycle impacts of apparel and toy products for a major international retailer. Developed an evaluation method to track and monitor apparel and toy manufacturer's progress to improve the sustainability of their products.

KPMG CONSULTING INC.

Boston, MA

1994 - 2001

Senior Manager

Provided project management, supply chain management, risk management, and business process improvement consulting services to numerous clients in North America and Europe. Generated consulting proposals, developed methodologies, managed project teams, and achieved high customer satisfaction. Responsible for selling and delivering up to \$2 million annually in business consulting projects.

HONEYWELL INC.

San Francisco, CA

1991 - 1993

Systems Engineer

Designed and implemented facility management system solutions for manufacturing, healthcare, and educational facilities in northern California. Solutions included: improved environmental and energy management control, increased energy efficiency, enhancements to life safety & security systems, and reduced operational costs.

DATA GENERAL CORP.

Durham, NH

1987 - 1990

Design Engineer

Led a mechanical design team for the design and development of electronics products including personal computers, video display terminals, and computer workstations. Responsible for initial product conception, CAD design, prototyping, structural analysis, thermal analysis, material selection, product testing, regulatory approval, packaging, and manufacturing introduction. Utilized Design for Manufacturing and Concurrent Engineering techniques to improve the overall design process.

EG & G

Salem, MA

1986

Manufacturing Engineer (Co-op position)

Responsible for improving the processes for manufacturing electronic components. Conducted root cause analysis and identified opportunities to reduce waste, increase production capacity, and reduce set-up time. Solutions implemented included increasing oven thermal efficiency, re-sequencing vacuum pump operations, and designing custom fixtures.

EDUCATION**University of Massachusetts Lowell, MA**

Doctor of Science in Cleaner Production, 2008

Graduate Certificate in Nanotechnology, 2007

Master of Science in Environmental Studies, 2002

Bachelor of Science in Mechanical Engineering, 1986

San Jose State University San Jose, CA

Masters of Business Administration (MBA), 1992

PROFESSIONAL CERTIFICATION

ASQ Six Sigma Black Belt (SSBB)

SME Lean Bronze Knowledge Certificate

Massachusetts Toxics Use Reduction Planner (TURP)

APICS Certified in Production and Inventory Management (CPIM)

Certified Engineer-In-Training (EIT)

REPORTS AND PAPERS

1. Morose, Gregory, "TURA Data Review Cable & Wire Industry Sector", TURI Methods and Policy Report No. 22, April, 2002.
2. Morose, Gregory, "An Investigation of Alternatives to Mercury Containing Products", Lowell Center for Sustainable Production, prepared for the Maine Department of Environmental Protection, January 22, 2003.
3. Morose, Gregory, "A Review of Thermostat Energy Efficiency and Pricing", Lowell Center for Sustainable Production, prepared for the Maine Department of Environmental Protection, May 12, 2003.
4. Morose, Gregory, Balf, Thomas, "Radioactive Materials Product Stewardship – A Background Report for the National Dialogue on Radioactive Materials Product Stewardship", Product Stewardship Institute, prepared for the U.S. EPA, June 11, 2003.
5. Morose, Gregory, "An Investigation of Alternatives to Miniature Batteries Containing Mercury", Lowell Center for Sustainable Production, prepared for the Maine Department of Environmental Protection, December 17, 2004.
6. Morose, Gregory, Shina, Sammy, et. al. "Summary of Visual and Reliability Testing Results of Surface Mounted Lead Free Soldering Materials and Processes", prepared for IPC/JEDEC 7th International Conference on Lead-free Electronic Components and Assemblies, Frankfurt, Germany, October 2004.
7. Morose, Gregory and Shina, Sammy, "How Surface Finish and Solder Paste Affect Lead-free Conversions", SMT Magazine, February 2005.
8. Morose, Gregory, Shina, Sammy, et. al. "Analysis of Testing Results of Surface Mounted Lead-free Soldering Materials and Processes", submitted for the Pan-Pacific Micro-electronics Symposium, Kauai, January 2005.
9. Morose, Gregory, Shina, Sammy, et al. "Reliability Testing Results of Surface Mounted Lead Free Soldering Materials and Processes", submitted for the APEX Conference in Anaheim, California, February, 2005.
10. Morose, Gregory, Shina, Sammy, et al. "New England Lead-free Electronics Consortium: Testing of Lead-free Soldering Materials and Processes for Solder Joint Integrity", submitted for the IPC/JEDEC 8th International Conference on Lead-free Electronic Components and Assemblies, San Jose, California, April 2005.
11. Morose, Gregory, Shina, Sammy, et al., "New England Lead-free Electronics Consortium – Phase III Efforts", submitted for the IPC/JEDEC 11th International Conference on Lead-free Electronic Components and Assemblies, Boston, MA, December 2005.
12. Morose, Gregory, Shina, Sammy, et al., "Summary of New England Lead-free Consortium Implementation of High Volume Assembly of Printed Wiring Boards", submitted for Pan Pacific Microelectronics Symposium, Kona, Hawaii, January 2006.
13. Morose, Gregory, Shina, Sammy, et al. "Visual and Reliability Testing Results of Circuit Boards Assembled with Lead Free Components, Soldering Materials and Processes in a Simulated Production Environment", submitted for the APEX 2006 Conference, February 2006.

14. Morose, Gregory, "An Overview of Alternatives to Tetrabromobisphenol A (TBBPA) and Hexabromocyclododecane (HBCD)", Lowell Center for Sustainable Production, prepared for the Jennifer Altman Foundation, March 2006.
15. Civie, Pamela, Morose, Gregory, Harriman, Elizabeth, et. al, "Five Chemicals Alternatives Assessment Study", Massachusetts Toxics Use Reduction Institute, Author for lead section, June 2006
16. Morose, Gregory, Civie, Pamela, "Alternatives Assessment Process Guidance", Published as Appendix A in Five Chemicals Alternatives Assessment Study, prepared for the Commonwealth of Massachusetts, Massachusetts Toxics Use Reduction Institute, June 2006
17. Morose, Gregory, Farrell, Robert, Russo, Richard, Mazur, Scott, "Transition to Lead-free Electronics Assembly Case Study", submitted for the IPC/JEDEC International Conference on Lead free Electronic Assemblies and Components, Montreal, August 2006.
18. Morose, Gregory, Farrell, Robert, Russo, Richard, Mazur, Scott, "A Successful Transition to Lead-free", SMT Magazine, August 2006.
19. Morose, Gregory, Farrell, Robert, Russo, Richard, Mazur, Scott, "Transition to Lead-free Electronics Assembly Case Study", IPC Review Magazine, November 2006.
20. Morose, Gregory, Farrell, Robert, Russo, Richard, Mazur, Scott, "Transition to Lead-free Electronics Assembly Case Study Part II: Product Reliability and Forced Rework", submitted for IPC/JEDEC Global Conference on Lead free Reliability and Reliability Testing, Boston, April 2007.
21. Farrell, Robert, Bodmer, Paul, Tostevin, Bruce, Russo, Richard, and Morose, Gregory, "Pb-free PTH Rework on a Thick, Heavy Assembly", Circuits Assembly Magazine, August 2007.
22. Dorairajou, Gowri, Morose, Gregory, and Schmidt, Daniel, "Greener PVC: The Development of Lead- and Phthalate-Free Nanocomposite Formulations with Practical Utility", TURI Technical Report # 60, 2007.
23. Dorairajou, Gowri, Morose, Gregory, and Schmidt, Daniel, "The Interaction of Nanoclay, Plasticizer and Stabilizer in PVC Wire and Cable Formulations with Enhanced Acceptability", Society of Plastics Engineers, submitted for the Annual Technical Conference, ANTEC, May 2008.
24. Morose, Gregory, Phipps, Alan, "Report on the Major Mercury-Containing Products and Processes, Their Substitutes and Experience in Switching to Mercury-free Products and Processes", prepared for United Nations Environment Programme, July 14, 2008.
25. Morose, Gregory, Balcerek, Jim, et. al., "Brooks Instruments LLC, Lead-free Electronics Implementation", TURI Technical Report #59, October 2008.
26. Morose, Gregory, Annex I to "Report on the Major Mercury-Containing Products and Processes, Their Substitutes and Experience in Switching to Mercury-free Products and Processes", prepared for United Nations Environment Programme, October 30, 2008.

27. Morose, Gregory, "Electronics Assembly, Rework, and Reliability Evaluation Using Lead-free Soldering Materials, Halogen-free Laminate Materials, and Surface Finishes with Nanomaterials", Doctoral Thesis, University of Massachusetts Lowell, November, 2008.
28. Shina, Sammy, Morose, Gregory, et al.; "Quality And Reliability Testing Of Circuit Boards Assembled With Lead Free Components, Finishes, Soldering Materials And Processes In Simulated Production Conditions", PAN PAC conference, January, 2010.
29. Morose Gregory , Shina, Sammy, et al; "Long Term Reliability Analysis of Lead-Free and Halogen-Free Electronics Assemblies", IPC Printed Circuits Expo, APEX and the Designers Summit, Las Vegas, Nevada, March 2009.
30. Morose Gregory, Shina, Sammy., et al, "Evaluation of Lead-free Solders, Halogen-free Laminates, and Nanomaterial Surface Finishes for Assembly of Printed Circuit Boards", Journal of Surface Mount Technology, ISSN: 1093-7358, Volume 22, Issue 4, 2009.
31. Torrie, Yve, Morose, Gregory, et. al., Best Practices in Product Chemicals Management in the Retail Industry, Green Chemistry and Commerce Council, Lowell Center for Sustainable Production, December 2009.
32. Morose, Gregory, "The Five Principles of Design for Safer Nanotechnology", Journal of Cleaner Production, ISSN 0959-6526, Volume 18, Issue 3, February 2010.
33. Jain, Sujit, Surwade, Sumedh P., Agnihotra, Srikanth Rao, Dua, Vineet, Eliason, Pamela A., Morose, Gregory J., Manohar, Sanjeev K., Green Chemistry Synthesis of Nanostructured Poly(2,5-dimethoxyaniine), Green Chemistry, 2010, DOI: 10.1039/B923400D, February 2010.
34. Eliason, Pamela, and Morose, Gregory, "Safer Alternatives Assessments: The Massachusetts Process as a Model for State Governments", Journal of Cleaner Production, Volume 19, Issue 5, March 2011.
35. Morose, Gregory, Shina, Sammy, and Farrell, Robert, "Supply Chain Collaboration to Achieve Toxics Use Reduction", Journal of Cleaner Production, Volume 19, Issue 5, March 2011.
36. Pilot Project for University/Business Partnerships, "Assessing Alternative Plasticizers in Wire and Cable Applications", Interim Report, May 4, 2011.
37. Petter, Tim, Morose, Gregory, Eliason, Pam, McGowan, William, Ophir Optics Case Study: Incorporating Toxics Use Reduction into Lean Manufacturing and Six Sigma at Ophir Optics, May 2011.
38. Fan Gao, Zhiyong Gu, Sammy Shina, Gregory Morose, Pamela Eliason, Robert Farrell, Investigation of Lead-free Nanosolder Reflow and Wettability Property for Electronics/Nanoelectronics Assembly and Packaging, Nanotech 2011 Conference, Boston, MA, June, 2011.
39. Morose, Gregory, Lindberg, John, "Economics of Conversion to Mercury-free Products", United Nations Environment Programme, DTIE Chemicals Branch, October 26, 2011.
40. Morose, Gregory, Becker, Monica, Chemical Alternatives Assessment, Chapter 5: A Collaborative Industry and University Alternative Assessment of Plasticizers for Wire and Cable, Issues in Environmental Science and Technology, Volume No. 36, Royal Society of Chemistry Publishing, 2013.

41. Morose, Gregory, Lamb, Dayna, Pinsky, David, DeFranco, Kent, Powell, Zachary, and Manavbasi, Alp, "Evaluation for Alternatives to Hexavalent Chromium Sealants", Metal Finishing Magazine, May/June 2013.