

Debbie Aliya, Materials Engineer

PO Box 2407, Grand Rapids, MI 49501 616-475-0059 e-mail DaAliya@aol.com

Major Qualifications:

Twenty five years experience in failure analysis, materials selection, characterization, and specification preparation for structural materials, including

- Working in and managing operations for commercial mechanical, metallographic and chemical testing labs and engineering consulting
- Planning curriculum and teaching in failure analysis, materials testing, engineering philosophy, and heat treating

Educational Background:

NORTHWESTERN UNIVERSITY, Evanston, IL 1984
MS in Materials Science and Engineering (Specialty in Polymers)

CARNEGIE-MELLON UNIVERSITY, Pittsburgh, PA 1981
BS in Metallurgy and Materials Science, BA in Modern Languages

Lakeshore Interfaith Institute, Ganges, MI 2001
Certified Interfaith Educator



Professional Practice and Work History:

Aliya Analytical, Inc., Grand Rapids MI

Founded Dec. 1994, Incorporated 2004 President of independent engineering service provider specializing in failure analysis and materials characterization, and education and training of manufacturing company employees. Aliya Analytical relies on both in house and outsourced lab testing to support consulting work.

ASM International, MEI faculty, (part time) Teaching Failure Analysis and Prevention and Heat Treating of Steel 1998 - 2007

Grand Rapids (1990-1993) and Montcalm Community Colleges, MI (1993- 1996)

Ferris State University (MI) (1994), Western Michigan University (2000) Adjunct Technology Faculty. Taught various materials, math and physics classes, including basic metallurgy and materials science and formability of sheet metal.

XRI Testing, Holland, MI

1991-1994

Metallurgical Consultant and test engineer. Responsible for new test method and certification board accreditation, as well as performance of standard and special testing in the Metallurgy Department.

Entela Laboratories, Grand Rapids, MI

1988-1991

Metals Testing Manager. Scheduled and performed certification testing, failure analysis and manufacturing troubleshooting relating to materials

Fruehauf Corporation, Detroit, MI

1985-1988

Project Materials Engineer. Wrote materials specifications for metals, paints, polymers. Performed failure analysis of new design prototype test specimens and field returns.

Inland Steel Corporation, East Chicago, IN

1984-1985

Metallurgical Engineer. Worked as process development engineer and foreman in melting and casting operating groups.

Crucible Steel, Midland, PA and Elliott Company (Carrier Corp.) Jeannette, PA

1978 and 1979

Co-op student. Quality control in melting and casting and process optimization in heat treat shop.

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Failure Prevention: Getting to the Root Cause- Conference May 22-25, 2000, Sponsored by ASM International Failure Analysis Committee - Presentation and Paper entitled **“What the Design Engineer Needs to Know about Material Variations and Specifications.”** Also, proceedings co-editor and conference organizer.

Failure Analysis of Heat Treated Steel Components Edited by George Totten et al

Author Chapter 2B (or 3, now in prepublication process, due out in 2008) Overview of the Mechanisms and Causes of Failure in Heat Treated Steel Components

Journal of Failure Analysis and Prevention*, Published by ASM Intl., Editorial Board 2001 - 2006

Author of the following Articles: Ethics in Engineering Investigations (June 2002)

Defining Objectives in Failure Analysis (August 2002)

Thinking Skill Optimization in Failure Analysis (December 2002)

Case Studies in Thinking Skill Optimization in Failure Analysis of Products and Processes (June 2003)

Co-author with Marc Pepi of article “Fractured Fare” (Dec. 2003)

Co-author with W.T. Becker and R. J. Shipley of article on communications and terminology in FA

* **Previously titled Practical Failure Analysis**

Lubrication and Fluid Power: Journal of Machinery Monitoring, Tests and Solutions

Broken Machinery Components Analysis, May 2003

Broken Machinery Components Case Studies, August 2003

Society for Machinery Failure Prevention Technology Conference Proceedings

52nd Conference "Why Threaded Fastener Specifications Don't Prevent Failure," March, 1998.

58th Conference “What Failure Analysis Can Do for the Machine Designer, Operator, Diagnostician and Prognostician. April 2004

61st Conference Proceedings published 4/07) “A Method for Preparing Metal Specifications for Structural Components” and “Cracking Tendencies in Steel Fillet Welds” (last two also published in JFAP in 2008)

62nd Conference CD Proceedings, May 2008, Invited Tutorial Presentation on Failure Analysis

SELECTED PRESENTATIONS

Thinking Skill Optimization in Casting Failures, Saginaw ASMI Chapter, March 2003

Thinking Skill Optimization in Failure Analysis, Twin City MN ASMI Chapter (2001), Metro New York / New Jersey ASMI/ ASNT Chapter, (March 2004), Pune, India ASM Chapter (Feb. 2008)

Visual Inspection in Failure Analysis, Minnesota Microscopy Society (March 2006) and ASMI Student Chapter at the Government Engineering College, (Feb. 2008) Pune, India

Overview of the Mechanisms and Causes of Failure in Heat Treated Steel Components (October 2007), ASM International Headquarters, Live and Web Based Simulcast Seminar

Commercial Affiliation: IMT Consulting (Dale Poteet, Owner)