

PARTIAL LIST OF PUBLICATIONS AND PRESENTATIONS BY E. R. CRUTCHER

- 2009 “Copper Migration: Causes and Solutions”, Euro-TechCon, November, Stretton, UK
- 2009 “Corrosive Sulfur Testing”, Euro-TechCon, November, Stretton, UK
- 2009 “Copper Mobility and Failure in Electrical Equipment-It is not Corrosive Sulfur”, Proceedings of Euro-TechCon, November, Stretton, UK
- 2009 “Conductive Paths in Paper Insulation”, TechCon-Asia, May, Sidney, Australia
- 2009 “Copper Mobility and Sulfur”, TechCon-US, February, San Diego, CA, USA
- 2008 “Copper Mobility and Sulfur in Electrical Equipment”, Euro-TechCon, November, Liverpool, UK
- 2008 “Meaning of Particles in Transformer Oil”, JST Conference, October, Los Angeles, CA, USA
- 2008 “Health & Green Buildings”, ENERGY/FACILITIES CONNECTIONS, Leavenworth, WA, May 23, 2008
- 2008 “Unusual Environmental Problems”, Washington State Indoor Air Quality Association, March, Seattle, WA
- 2007 Particles and Health: Environmental Forensic Analysis, PIHA, October 21, Louisville, KY
- 2007 Particles and Health: Environmental Forensic Analysis, AIHA, June 2, Philadelphia, PA
- 2006 “Particles, Size Distributions, and Health Complaints”, Northwest Occupational Health Conference, Oct. 26, Wenatchee, WA
- 2006 “The Human Being as a Particle Sampling Device”, Northwest Occupational Health Conference, Oct. 26, Wenatchee, WA
- 2006 “Paint Induced Elevation of Oil Power Factor in Electrical Equipment”, Doble Conference, April 11, Boston, MA
- 2006 “Why Schools Are Different: The Environmental Challenge of the Classroom Environment”, Washington Education Association, May 18, Federal Way, WA

- 2006 “Oil Soluble Contaminants from Materials Used in Electrical Equipment”,  
US-TechCon, February 6-7, Scottsdale, Arizona
- 2006 “Health and Health Complaints in Schools”, Scarr Center Conference, January 18,  
Redmond, WA
- 2005 “Health and Health Complaints and IEQ”, Healthy Indoor Environments  
Conference, October 13-14, Kansas City, KS
- 2005 “Particles and IEQ”, Healthy Indoor Environments Conference, October 13-14,  
Kansas City, KS
- 2005 Particles and Health: Environmental Forensic Analysis, PIHA,  
October 22, Denver, CO
- 2005 Particles and Health: Environmental Forensic Analysis, AIHA,  
May 22, Anaheim, CA
- 2005 “Insulation Oil: Data Storage Medium”, Asia-Pacific TechCon, May ,  
Sydney, Australia
- 2005 “Death by a Thousand Cuts”, US-TechCon, February , San Diego, CA
- 2005 “LTC’s with High Cholesterol”, US-TechCon, February , San Diego, CA
- 2004 “Mechanisms of Coking: Monitoring the Coking Potential”, EPRI,  
October 14, Charleston, NC
- 2004 “Particles and the Forensic Assessment of Equipment Condition”, Asia-Pacific  
TechCon, September, Australia
- 2003 “Identification of Indoor Particles by Analytical Light Microscopy”,
- 2003
- 2002 “Forensic Failure Analysis: How Materials Fail in Load Tap Changers”, IEEE  
Conference, October,
- 2002 “Event Generated Metal Particles and Equipment Diagnosis”, Euro-TechCon,  
Oct. 1-3, Birmingham, UK
- 2002 “Mechanism of Coking in Load Tap Changers: A Status Report”, EPRI  
Conference, February,

- 2002 "The Failure Cascade, Part II: Microscopical Evidence and the Failure Analysis Team", US-TechCon, February ,
- 2001 "The Failure Cascade, Part I: Microscopical Evidence of the Root Cause", US-TechCon, February ,
- 2000
- 1999 "Application of Optical Microscopy to Condition Appraisal of High Voltage Equipment", TechCon 99, Feb. 18.
- 1998 "Microscopy of Indoor Environmental Particles", Northwest Occupational Health Conference, Seattle, WA, Oct. 8
- 1997 "Microscopy as a Tool for the Elucidation of High Voltage Equipment Problems: Case Histories", TechCon 97, Feb. 13.
- 1997 "Surface Particles and Environmental Quality", Graduate Seminar, Montana Technical Institute, Butte, MT.
- 1996 "Solving Problems in the Electrical Power Industry Using Light Microscopy", TechCon 96, Feb. 17.
- 1993 "The Characterization of Particles on Spacecraft Returned from Orbit", Particles on Surfaces, Marcel Dekker, Inc., pp. 219-252, 1995.
- 1992 "Up-Date on Bulk Asbestos Analysis", Minnesota Microscopy Association, St. Paul, MN.
- 1992 "Contamination on LDEF: Sources, Distribution, and History", 2nd Post-Retrieval LDEF Symposium, NASA Publication.
- 1992 "Identification of House Mites and Their Fecal Material", AOAC International, Northwest North American Conference, Olympia Washington.
- 1991 "Results of Examination of Silvered Teflon from the Long Duration Exposure Facility (LDEF)", LDEF--69 Months in Space: First Post-Retrieval Symposium, June 2-8, NASA CP 3134, 847-859.
- 1991 "Migration and Generation of Contaminants from Launch Through Recovery: LDEF Case History, LDEF--69 Months in Space: First Post-Retrieval Symposium, June 2-8, NASA CP 3134, 121-140.
- 1991 "Particle Types and Sources Associated with LDEF", LDEF--69 Months in Space: First Post-Retrieval Symposium, June 2-8, NASA CP 3134, 101-120.

- 1991 "Quantification of Contaminants Associated with LDEF", LDEF--69 Months in Space: First Post-Retrieval Symposium, June 2-8, NASA CP 3134, 141-154.
- 1991 "Silver Teflon Blanket: LDEF Tray C-08, LDEF--69 Months in Space: First Post-Retrieval Symposium, June 2-8, NASA CP 3134, 861-874.
- 1991 "New Developments in the Quantification of Asbestos in Bulk Samples", AOAC International, Northwest North American Conference, Olympia Washington.
- 1990 Preliminary Report on Contamination Control for the LDEF Satellite, NASA Langley Publication.
- 1990 "Introduction to Chemical Microscopy", AOAC International, Northwest North American Conference, Olympia Washington.
- 1989 "An Introduction to Phase Contrast and Phase Contrast Dispersion Staining", to be published
- 1988 "Unusual Asbestiform Minerals in Commercial Environments", Northwest Chapter of Association of Official Analytical Chemists Annual Technical Meeting.
- 1988 "Small Particle Identification Using Light Microscopy", Institute of Environmental Sciences Specialty Conference, Longbeach, CA.
- 1986 Feasibility Study of Receptor Modeling for Apportioning Utility Contributions to Air Constituents, Deposition Quality, and Light Extinction, Electric Power Research Institute Publication.
- 1986 Analytical Light Microscopy, Textbook for Optical Properties of Materials Class, University of Washington.
- 1984 Bulk Asbestos Analysis, Textbook of Bulk Asbestos Analysis Class, Microlab Northwest.
- 1984 "Determination of the Cleanliness of Surfaces", Institute of Environmental Sciences Specialty Conference, Tualatin, OR.
- 1983 "Detection of Contaminants", Institute of Environmental Sciences Specialty Conference, Seattle, WA.
- 1983 "Analysis of Contaminants: Elements, Compounds, Sources, and Properties", Institute of Environmental Sciences Specialty Conference, Seattle, WA.
- 1983 Interlaboratory Comparison of Receptor Model Results for Houston Aerosol, U. S. Environmental Protection Agency Specialty Conference on Atmospheric Particulate Analysis (Quail Roost II).

- 1983 Contamination Control Microscopy, Tutorial and Publication at the 1983 Annual Technical Meeting of the Inst. Envir. Sci.
- 1983 "Metal in oil analysis using analytical light microscopy", Doble Conference.
- 1982 "Light microscopy as an analytical approach to receptor modeling", Specialty Conference: Receptor Models Applied to Contemporary Pollution Problems, APCA, pp. 266-284.
- 1982 "Quantitative Optical Microscopical Analysis", Environmental Protection Agency Specialty Conference on Atmospheric Particulate Analysis (Quail Roost II).
- 1982 "The identification of particulate contamination in insulation oil", Proceedings of Inst. Envir. Sci..
- 1982 "Automatic Image Analysis as a Particle Counting Technique", Annual Technical Meeting of the Inst. Envir. Sci.
- 1982 "The Selection of Optical Criteria for the Identification of Airborne Particulate", Annual Technical Meeting of the American Chemical Society.
- 1981 "How Particulate Contaminants are Identified Using the Light Microscope", Proceedings of Inst. Envir. Sci., 1981.
- 1981 "The Selection of Optical Classification Criteria for the Quantitative Light Microscopical Analysis of Complex Powders", American Chemical Society Pacific Conference.
- 1981 "Optical Microscopy: An Important Tool for Particulate Receptor Source Apportionment", Annual Technical Meeting Proceedings of the Air Pollution Control Association (APCA).
- 1980 "Teaching Analytical Light Microscopy in a Contamination Control Laboratory", Proceedings of the Annual Technical Meeting of the Inst. Envir. Sci., pp. 219-23, May 12-14, Philadelphia, PA.
- 1980 "Problems with the Optical Microscopic Identification and Quantification of Asbestos", Annual Technical Meeting Proceedings of the Air Pollution Control Association (APCA).
- 1980 "Three Legal Actions and Optical Microscopy", U. S. Environmental Protection Agency Specialty Conference on Atmospheric Particulate Analysis (Quail Roost I).
- 1980 "Review of 'Environmental Pollutants: Detection and Measurement', ed. Y. Taft",

- Journal of Environmental Sciences, Vol. 23, No. 5.
- 1979 "A Formalized Mathematical Evaluation of Error in Quantitative Optical Microscopy", Proceedings of Inst. Envir. Sci.
- 1979 "A Standardized Approach to Airborne Pollution Analysis Using Quantitative Optical Microscopy", Proceedings of Inst. Envir. Sci.
- 1979 "Interpretation of Flight Collected Contamination Data for AIMP-D, AIMP-E, IMP-I, and NTS-2 Satellites", NASA Presentation.
- 1978 "Assemblage Analysis -- Identification of Contamination Sources", 2nd Spacecraft Contamination Control Conf.
- 1978 "Estimation of error in quantitative microscopic analysis of compounds", 4th International Symposium on Contamination Control, Washington, D.C..
- 1977 "The role of light microscopy in aerospace analytical laboratories", Proceedings of Inst. Envir. Sci.
- 1976 Analytical Light Microscopy: Theory", Boeing Document D180-20196-1
- 1976 "Analytical Methods in Optical Microscopy", Boeing Document D180-20196-2
- 1975 "Combined Environmental Effects on Polymers", Proceedings of the National Space Simulation Symposium.
- 1975 "Optical and Density Study of Airborne Particulate in the Duwamish Basin", Boeing Document D180-18611-1
- 1974 "Dielectric Failure and Particle Generation in an Orbital Environment", Boeing Document D180-18611-1
- 1973 "Forensic Applications of Pollen Analysis", Northwest Association of Forensic Scientists
- 1972 "Genetics and Fingerprints, Forensic Applications", International Association for Identification, Western Canada and Northwest U.S. Chapter.
- 1972 "Evidence Handling, Standard Operating Procedure", Training Guide for Bellevue Police Department.
- 1971 "Fingerprints as Evidence: Their Protection, Documentation, and Collection", Training Guide for Bellevue Police Department.