

## **Charles W. Axten, Ph.D., CIH**

### **Office:**

Office and Laboratory:

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### **Education:**

BS, Case Western Reserve University, Cleveland, OH, 1970.  
MS, Youngstown State University, Youngstown, OH, 1977.  
MBA, (Technical Scientific Management), Fairleigh Dickinson University, New Jersey, 1984.  
PhD, The University of Michigan, Ann Arbor, MI, 1991.

### **Licensure:**

Certified Industrial Hygienist

### **Committees:**

ASTM Health and Safety Committee.  
ASHRAE Environmental Health Committee.  
Scientific Committee, Health Hazard Evaluation of Fibrous Particles Associated with Taconite Ore,  
St. Paul, MN, March, 2003.

### **Research/Professional Experience:**

Senior Scientist, Environmental Sciences Laboratory, Brooklyn College of The City University of New York, Brooklyn, NY, 2000 to Present.

President - Health Risk Solutions, McLean, VA, 2000 to Present.  
Consulting firm providing assistance to organizations in the effective management of issues encompassing: Occupational Health, Epidemiology, Toxicology, Environmental, Product Safety, Regulatory Compliance, Exposure Assessment, Risk Communication, Risk Management.

Director, International Environmental Research Foundation, New York, NY, 2000 to Present.

Vice President - Health, Safety and Environmental Affairs, North American Insulation Manufacturers Association, Alexandria, VA, 1993 to 2000.  
Consulting firm providing assistance to organizations in the effective management of issues encompassing: Occupational Health, Epidemiology, Toxicology, Environmental, Product Safety, Regulatory Compliance, Exposure Assessment, Risk Communication, Risk Management.

Vice President - Health, Safety and Environmental Affairs, North American Insulation Manufacturers Association, Alexandria, VA, 1993 to 2000.

Responsible for management the insulation industry's \$20 million research program investigating potential health effects of products. Developed member company consensus on research programs, and served as study director for projects. Administered all aspects of research programs involving: Animal Toxicology Studies, Hazard Evaluations and Risk Assessments, Epidemiological Investigations, Chemical/Physical Properties of Fibers and Related Substances.

Developed regulatory submissions based on scientific and technical data, including submissions to EPA, OSHA, NIOSH, NIEHS, CPSC, NTP and other agencies.

Served as the industry's primary spokesperson on the health and safety of fiber glass, rock wool and slag wool products to regulatory agencies, allied trade associations, member companies' customers, the media, and the general public.

Addressed environmental regulatory and compliance issues relevant to member companies (e.g., MACT rulemaking proceedings, HAP test rule proposals, TSCA reporting).

Vice President - Health, Safety and Environmental Affairs, Partek Insulations, Inc., Peachtree City, GA, 1990 to 1993.

Planned, directed and implemented programs at startup company, including:

Environmental compliance at manufacturing facilities, including air permitting and compliance, waste minimization and recycling or disposal, toxic release inventory and other reporting obligations, environmental control technologies, and contacts with regulatory agencies as necessary.

Occupational health and safety programs to protect employees and reduce the costs of medical and worker's compensation coverage.

Product labeling and literature with regard to health, safety and environmental issues as well as hazard communication programs for employees and customers.

Supported company president on technical, legal, personnel and other matters as required.

In addition, served as elected President of industry trade association, the Thermal Insulation Manufacturers Association (TIMA). TIMA sponsored over \$35 million of scientific research, as well as provided scientific and technical information to regulatory agencies and the public.

Director - Occupational Health and Safety, Owens-Corning Fiberglas Corporation, Toledo, OH, 1986 to 1990.

Responsible for a staff of twenty health and safety professionals who provided technical assistance to more than fifty manufacturing facilities worldwide.

Established policies and procedures to ensure compliance with OSHA requirements, TSCA, SARA Title III, and other regulatory programs.

Addressed issues related to fibers, formaldehyde, asbestos, asphalt fumes, PAH's, styrene, silica, noise, ergonomics, and hazard communication.

Interacted with Corporate and Operating Division Management to develop occupational health and safety programs responsive to operating requirements and cost considerations.

Managed more than \$4 million in toxicology and epidemiology research contracts and integrated the results of research into regulatory proceedings and public relations efforts.

Manager - Environmental Health and Safety, ITT Corporation, New York, NY, 1981 to 1986.  
Responsible for the management of health, safety, and environmental professionals who advised more than 300 worldwide manufacturing operations of diverse conglomerate.

Advised Operating Divisions (Defense Communications, Telecommunications, Rayonier, and Electronics) on environmental and occupational health compliance.

Senior Industrial Hygienist, ICI Americas, Inc., 1979 to 1981.

Staff Industrial Hygienist, Goodyear Tire and Rubber Company, 1976 to 1979.

District Environmental Health Specialist, Ohio Department of Health, 1973 to 1976.

Medical Service Corps, U.S. Army, 1970 to 1973.

### **Professional Certifications and Associations:**

Certified Industrial Hygienist (CIH).  
American Industrial Hygiene Association.  
American Academy of Industrial Hygiene.  
American Public Health Association.  
American Society of Safety Engineers.  
Air and Waste Management Association.  
American College of Toxicology.  
International Society of Toxicology and Regulatory Pharmacology.  
Society for Risk Analysis.  
Society of Toxicology.  
ASTM Health and Safety Committee.  
ASHRAE Environmental Health Committee.

### **Industry Project Reports:**

1. Mineralogy and Experimental Animal Studies of Tremolitic Talc. Nord G.L., Axten C.W., Nolan R.P.: A submission to the National Toxicology Program as produced by the Gouverneur Talc Company at its mines in New York State and Factors to Consider in Evaluating Causation, December 1, (2000).
2. An Evaluation of the Epidemiological Evidence Concerning "Talc" and Respiratory Cancer in Humans with Specific Attention to "Talc". Nord G.L., Axten C.W., Nolan R.P.: A submission to the National Toxicology Program as produced by the Gouverneur Talc Company at its mines in New York State and Factors to Consider in Evaluating Causation, December 1, (2000).

### **Invited Seminars, Lectures and Conferences:**

1. Health Hazard Evaluation of Fibrous Particles Associated with Taconite Ore. Sponsored by the International Environmental Research Foundation and the Minnesota Department of Health, St. Paul, Minnesota, March, (2003).

## **Publications:**

1. Axten, Charles W., "Recommended Insulator Work Practices," *Insulation Contractors Monthly*, Insulation Contractors Association, 16:12 (1993).
2. Axten, Charles W., "New Hope for Risk-Based Communication," *Insulation Outlook Magazine*, National Insulation Association, Volume 38: 54 (1993).
3. Axten, Charles, Bauer, John, Boymel, Paul, Copham, John D., Cunningham, Richard, Kamstrup, Ole, Koenig, Alan, Konzen, Jon L., Ohberg, Ingemar, Roe, Clyde, Sacks, Jeff, Singh, T.M., and Wolf, Warren, *Man-Made Vitreous Fibers: Nomenclature, Chemistry and Physical Properties*, Thermal Insulation Manufacturers Association (TIMA), Stamford, CT, April 15, 1991, Revised and Reprinted March 1, 1993.
4. Axten, Charles W., "Fiber Glass: Not a Cause of Sick Building Syndrome," *IAQ Journal*, 56:22-23 (1994).
5. Koenig, A.R., and Axten, C.W., "Exposures to Airborne Fiber and Free Crystalline Silica During Installation of Commercial and Industrial Mineral Wool Products," *The American Industrial Hygiene Association Journal*, 56:1016-1022 (1995).
6. Axten, Charles W., "A Review of Airborne Man-Made Vitreous Fiber (MMVF) Concentrations in Residential and Commercial Buildings," in *Engineering Solutions to Indoor Air Quality Problems*, Air and Waste Management Association, One Gateway Center, Pittsburgh, PA, 15222 (1997).
7. Hesterberg, T.W., Axten, C., McConnell, E.E., Oberdorster, G., Everitt, J., Miiller, W.C., Chevalier, J., Chase, G.R., and Thevenaz, P., "Chronic Inhalation Study of Fiber Glass and Amosite Asbestos in Hamsters: Twelve Month Preliminary Results," *Environmental Health Perspectives*, National Institute of Environmental Health Sciences, Volume 105 Supplement 5: 1223-1229 (1997).
8. Hesterberg, T.W., Chase, G., Axten, C., Miiller, W.C., Musselman, R.P., Kamstrup, O., Hadley, J., Morscheit, Berstein, D.M., and Thevenaz, P., "Biopersistence of Synthetic Vitreous Fibers and Amosite Asbestos in the Rat Lung Following Inhalation," *Toxicology and Applied Pharmacology*, 151:262-275 (1998).
9. Carter, C.M., Axten, C.W., Byers, C.D., Chase, G.R., Koenig, A.R., Reynolds, J.W., and Rosinski, K.D., "Indoor Airborne Fiber Levels of MMVF in Residential and Commercial Buildings," *The American Industrial Hygiene Association Journal*, 60:794-800 (1999).
10. Hesterberg, Axten, C., McConnell, E.E., Hart, G.A., Miiller, W., Chevalier, J., Everitt, J., Thevenaz, and Oberdorster, G., "Studies on the Inhalation Toxicology of Two Fiberglasses and Amosite Asbestos in the Syrian Golden Hamster. Part I. Results of a Subchronic Study and Dose Selection for a Chronic Study," *Inhalation Toxicology*, 11:747-784 (1999).
11. McConnell, E.E., Axten, C., Hesterberg, T.W., Chevalier, J., Miiller, W.C., Everitt, J., Oberdorster G., Chase, G.R., Thevenaz, P., and Kotin, P., "Studies on the Inhalation Toxicology of Two Fiberglasses and Amosite Asbestos in the Syrian Golden Hamster. Part II. Results of Chronic Exposure," *Inhalation Toxicology*, 11:785-835 (1999).

## **Published Abstracts and Selected Presentations:**

1. Axten, C.W., and Bender, J. R., "Exposure of Production Employees to Airborne Concentrations of Fibrous Glass During the Manufacturing Process," *Proceedings of the VIIIth International Pneumoconioses Conference, Pittsburgh, PA*, August 23-26 (1988).

2. Axten, C.W., "Hazard Communication – Responsibilities of Manufacturers and Obligations of End-Users," Presentation at the Technical Association of the Pulp and Paper Industry, St. Augustine, FL (1992).
3. Axten, C.W., and Bender, J.R., "Exposure of End-Users to Airborne Concentrations of Fibrous Glass During Installation of Insulation Products and Fabrication Operations," *Proceedings of the VIIIth International Pneumoconioses Conference, Pittsburgh, PA, August 23-26 (1988).*
4. Axten, C.W., Conover, J.K., Auborg, P.F., Kalinowski, M.R., and Klotz, E.J., "A Comparison of Airborne Fiber Results Using NIOSH Methods 239 and 7400," *Proceedings from the American Industrial Hygiene Conference and Exposition in San Francisco, CA (1988).*
5. Chiazzo, L., Amsel, J., Watkins, D., Miller, R., Kozen, J., and Axten, C.W., "Developing an Historical Environmental Reconstruction of an Industrial Environment for Use in Occupational Epidemiology," *Proceedings of the Society for Epidemiological Research in Birmingham, AL (1989).*
6. Axten, C.W., "Health Effects of Man-Made Vitreous Fibers," Presentation to the Kentucky Safety and Health Network, Inc., Louisville, KY (1994).
7. Bender, J.R. and Axten, C.W., "Health Considerations of Textile Fiber Glass Used in Reinforcement Applications," Presentation at the Technical Association of the Pulp and Paper Industry, Marco Island, FL (1989).
8. Axten, C.W., and Anderson, R., "Overview of Research Studies and Exposure Data on Fibrous Glass," *Proceedings of the U.S. Navy Occupational and Safety Forum, Virginia Beach, VA (1989).*
9. Axten, C.W., and Amsel, J., "Review of Epidemiology Results and Exposure Data on Fibrous Glass," Presentation at the American Industrial Hygiene Association Mid-West Chapter Meeting, Chicago, IL (1990).
10. Bender, J.R., Axten, C.W., and Chase, G.R., "Health Effects of Man-Made Vitreous Fibers – Toxicology, Epidemiology, and Exposure Aspects," *Proceedings off the American Occupational Medical Association Annual Meeting in Atlanta, GA (1992).*
11. Axten, C.W., and Versen, R. "Health Effects of Man-Made Vitreous Fibers – The Contractors Perspective," Presentation at the Mid-West Insulation Contractors Association Meeting, French Lick, IN (1993).
12. Axten, C.W., "Comments of the Synthetic Vitreous Fiber Industry on the Review of Criteria for Listing Substances in the Biennial Report on Carcinogens," Presentation Before the Ad Hoc Working Group of the National Toxicology Program Board of Scientific Counselors, Raleigh, NC (1995).
13. Axten, C.W., "Review of the Research on Synthetic Vitreous Fibers in Light of the NTP Listing – What's the Real Story?" Presentation at the American Industrial Hygiene Association Mid-Atlantic Chapter Meeting, Annapolis, MD (1995).
14. Axten, C.W., "Health Effects of Synthetic Vitreous Fibers," Presentation Before the American Conference of Governmental Industrial Hygienists Dust and Inorganics Subcommittee, San Antonio, TX (1995).
15. Axten, C.W., "The National Toxicology Program Listing of Fibrous Glass – Significance to Customers and End-Users," Presentation at the Technical Association of the Pulp and Paper Industry, St. Petersburg, FL (1996).
16. Axten, C.W., and Anoush, Fred, "A Joint Research Project – Investigating Man-Made Vitreous Fiber (MMVF) Insulation Removal Practices in the Power Industry With Preliminary Results of Potential

Worker Exposure to Airborne MMVF Fibers,” *Proceedings from the American Power Conference in Chicago, IL*, April 9-11, (1996).

17. Axten, C.W., “Fiber Glass Duct Insulation – Benefits and Research Update,” *Proceedings of The National Air Duct Cleaners Association Annual Meeting*, Orlando, FL (1998).
18. Case, T., Axten, C., Byers, C., Carter, C., Cereghini, F., and Reynolds, J. “A Study of Worker Exposures During the Removal of Man Made Vitreous Fiber (MMVF) Insulation Products,” *Proceedings from the American Industrial Hygiene Conference and Exposition in Atlanta, GA* (1998).
19. Hesterberg, T.W., Axten, C., Hadley, J., McConnell, E.E., Miiller, W., Chevalier, J., Everitt, J., Thevenaz, P., and Oberdorster, G., “Estimating the Maximum Tolerated Dose of Fiber Glass for a Chronic Inhalation Study Using the Syrian Golden Hamster,” *The Toxicologist*, Volume 42 (1998).
20. McConnell, E.E., Miiller, W., Hesterberg, T.W., Thevenaz, P. and Axten, C., “A Comparison of the Oncogenic Effects of Various Types of Asbestos in Rodents After Lifetime Inhalation,” *The Toxicologist*, Volume 42 (1998).
21. Axten, C., MC Connell, E.E., Hesterberg, T.W., Hadley, J.G., and Miiller, W., Thevenaz, P., and Chevalier, J., “Chronic Inhalation Study of Two Types of Fibrous Glass and Amosite Asbestos in Syrian Golden Hamsters,” *The Toxicologist*, Volume 42 (1998).
22. Axten, C.W., “Fiber Glass Safety – Providing Confidence Through Research,” *Proceedings of International Conference on Indoor Air '99*, Washington, D.C. (1999).
23. Axten, C.W., Hadley, J., Hesterberg, T., McConnell, E.E., and Miiller, W., “Fiber Biopersistence as an Indicator of Potential Pathophysiology – Results of a Chronic Inhalation Study,” *Proceedings of the 7<sup>th</sup> International Symposium on Particle Toxicology* in Maastricht, The Netherlands, October 13-15, (1999).
24. Jones, A.D., Miiller, W.C., Thevenaz, Ph., Axten, C.W., Hesterberg, T.W., Hadley, J., and Dorati, “Influence of Methodology on Reported Lung Burdens and Fiber Concentrations for Inhalation Studies with Man-Made Fibers: Part II – Fiber Analytical Methods,” *Proceedings of the 7<sup>th</sup> International Symposium on Particle Toxicology* in Maastricht, The Netherlands, October 13-15, (1999).
25. Thevenaz, Ph., Jones, A.D., Miiller, W., Axten, C.W., Hesterberg, T.W., Hadley, J., McConnell, E.E., and Dotti, A., “Influence of Methodology on Reported Lung Burdens and Fiber Concentrations for Inhalation Studies with Man-Made Fibers: Part I – Aerosol Generation and Exposure Methods,” *Proceedings of the 7<sup>th</sup> International Symposium on Particle Toxicology* in Maastricht, The Netherlands, October 13-15, (1999).
26. Nolan R.P., Ross M., Nord G.L., Axten C.W., Wilson R.: Risk Assessment Based on an Analysis of Air and Settled Dust Samples from the Collapse of the Twin Towers of the World Trade Center, International Conference on Safety and Health in the Production and Use of Asbestos and Other Fibrous Materials, Ekaterinburg, Sverdolvsk Region, Russian Federation, June 3-7, (2002).
27. Nord G.L., Axten C.W., Ross M., Nolan R.P.: Mineralogy and Experimental Animal Studies of Tremolitic Talc, ASTM Johnson Conference, A Review of Asbestos Monitoring Methods and Results for the New York World Trade Center, Libby Vermiculite and Fibrous Talc, July 14-18, (2002).