



PETERSON ASSOCIATES

INDUSTRIAL HYGIENE CONSULTANTS

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262

September 25, 1990

Richard C. Polley, Esquire
DICKIE, McCAMEY & CHILCOTE
400 Two PPG Place
Pittsburgh, PA 15222

Dear Mr. Polley:

At your request, I examined the possible health hazards created by gloves and coats made of woven asbestos fibers and covered by an aluminized film. Based upon my experience as a Certified Industrial Hygienist, my knowledge of the steel industry, and my review of the relevant test results and literature, my opinion to a reasonable degree of scientific certainty is that there is no health hazard created as a result of the use of aluminized protective gloves and coats manufactured from asbestos cloth.

In experiments designed to maximize the concentrations of airborne asbestos from non-aluminized garments, most samples indicate that the 8-hr TWA exposure from wearing coats and/or aprons and gloves is well below the applicable standard (TLV). When the exposure of a certain person is not or cannot be determined over a long period of time, the best estimate of that exposure is the average of TWAs of persons similarly exposed. Therefore, it is my opinion based on my experience, review of relevant test results and literature that the long-term TWA exposures of non-aluminized asbestos garment wearers is insignificant in a steel mill environment.

Aluminized cloth is comprised of five plies. These five plies are aluminum, protective film, a second layer of aluminum, heat stable adhesive, and the fabric. The four plies that comprise the aluminized surface have the effect of encapsulating the fabric. Hence, test results have shown that aluminized asbestos does not shed measurable amounts of respirable physiologically-significant fiber. From my knowledge of the construction of the aluminized garments as well as from the prior experimentation, it is my professional opinion that in a steel mill environment the asbestos inhalation hazard from aluminized fabric is nil.

Very truly yours,

Jack E. Peterson, P.E., Ph.D.
Certified Industrial Hygienist

PLAINTIFF'S EXHIBIT

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DKS 026

RESUME

Jack E. Peterson, P.E., Ph.D.
Certified Industrial Hygienist

July 18, 2000

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QUALIFICATIONS IN BRIEF: Broad industrial, academic, and consulting experience in all areas of industrial hygiene. Emphasis on human inhalation toxicology of carbon monoxide and organic solvents and on the hazards of gases, vapors, and dusts and their control especially by engineering methods in chemical manufacturing plants, foundries, and metal-working operations. Experience in evaluating and controlling heat stress, ionizing radiation, noise, and air pollution; teaching about air pollution, toxicology, and industrial hygiene.

PROFESSIONAL OBJECTIVES: To evaluate and solve environmental and occupational health problems and to organize health conservation efforts of clients. To offer the best possible training and education in industrial hygiene/toxicology and air pollution.

EXPERIENCE: Currently consultant in industrial hygiene and toxicology. Appointment at the Medical College of Wisconsin as Clinical Professor of Preventive Medicine and at the University of Illinois as Visiting Professor in Occupational and Environmental Health Sciences.

August 1975 to June 1986

Half-time at Marquette University as Associate Professor of Civil Engineering until 1980 and half-time industrial hygiene and toxicology consultant. Professor and Visiting Professor in Occupational and Environmental Health Sciences, University of Illinois from 1977. Professor of Allied Health, University of Wisconsin--Parkside, 1984 to 1986.

June 1968 to August 1975

Completed a text, Industrial Health; helped to pilot the production of a unique small electrostatic precipitator; began consulting for Fred S. James & Co. and Briggs & Stratton. Joint appointment at Marquette University and the Medical College of Wisconsin, first as Assistant, then as Associate Professor of Civil Engineering and of Environmental Health Engineering. Completely responsible for planning and teaching courses on the principles of industrial hygiene/toxicology and community air pollution, one course each semester since 1969.

Responsible for the direction of several MS and doctoral candidates. Began research on small incinerator emissions with a grant from the Naulin Foundation in 1974.

Responsible for the design, plan, construction, and operation of two human inhalation exposure chambers and ancillary laboratory facilities. Interfaced an on-line computer to the analytical equipment for the chamber and wrote programs used to acquire, interpret, and summarize much of the toxicological data gathered.

August 1952 to August 1965

Environmental Health Engineer, Biochemical Research Laboratory, The Dow Chemical Company, Midland, Michigan.

Primary responsibility for the evaluation of health hazards in the preproduction stages of chemical manufacture and for assuring the use of appropriate controls during growth from the laboratory bench to full production. Evaluation and control of fumigation, heat stress, ionizing radiation, and noise hazards. Research on air pollution, on air sampling methods, ventilation (including laboratory hood design), and toxicology.

EDUCATION: B.S. in Chemical Engineering, Washington State College, 1951.

MS in Chemical Engineering, University of Michigan, 1952.

Ph.D. in Industrial Health, University of Michigan, 1968. Thesis: "Human Biothermal Strain in Relation to Environmental Stress Parameters."

HONORS AND AWARDS: "With honors" graduation in 1951.

Authorship award from the American Industrial Hygiene Association for the "Outstanding paper published in the American Industrial Hygiene Association Journal" in 1962 and again in 1970.

Henry F. Smyth, Jr. lecture and award from the American Academy of Industrial Hygiene, 1987.

Certified in "Comprehensive Aspects" by the American Board of Industrial Hygiene, 1973, by examination. Recertified, 1983, 1989, and 1995.

Byron A. Berg Award from the Wisconsin Section, AIHA, 1989.

Fellow of the American Industrial Hygiene Association, 1994.

Honorary Membership in the American Industrial Hygiene Association, 1996.

CONSULTANT TO: Briggs & Stratton, FMC, Transamerica, Fred S. James & Co., Dow Chemical, Globe Battery Division of Johnson Controls, National Institute for Occupational Safety and Health, U.S. Navy, Occupational Safety and Health Administration, Car-Mon

Products, Rexnord, Polyurethane Manufacturer's Association, Eli Lilly, Johnson & Johnson, Oscar Mayer, Freeman Chemical, Borden Chemical, International Harvester, General Motors, Ford, Chrysler, Titus Rubber, Miller Brewing, S.C. Johnson & Son, Triple E, Bostrom Division of UOP, Anderson Development, Sanitaire, Environmental Resources Management, Gartland Foundries, American Concrete Pipe, Fiat-Allis, Southwest Forest Industries, Crawford and Company, Wisconsin Telephone, Stauffer Chemical, Miller Compressing, Monsanto, several law and insurance firms and many others.

MEMBERSHIPS: ALPHA CHI SIGMA (National Professional Chemistry Fraternity), 1949 to present.

American Industrial Hygiene Association, 1956 to present; its Hygienic Guides Committee from 1963 to 1973; chairman of that committee from 1969 to 1973. Nominating Committee, 1983 to 1986.

Spray Coating Code Advisory Committee for the State of Wisconsin, 1969 to 1973. Chairman.

Chicago Section, American Industrial Hygiene Association, 1972 to 1991.

American Academy of Industrial Hygiene, 1973 to present. Councilor, 1975 to 1978. Continuing Education Committee, 1981 to 1986. Planning Committee, 1981. Joint Conference on Occupational Health. Accreditation Committee, 1984 to 1993, Co-chairman, 1984 to 1988, Chairman, 1988 to 1991, Secretary 1991 to 1993. Vice-President, AAIH, 1995; President-Elect, 1996; President, 1997; Past-President, 1998.

Wisconsin Section, American Industrial Hygiene Association, 1979 to 1991. Its Board of Directors, 1979 to 1980. President, 1981.

New York Academy of Sciences, 1979 to 1996.

Engineering Control Technology Workshop Committee (NIOSH), 1981 to 1984. Chairman, 1983.

American Conference of Governmental Industrial Hygienists, 1985 to 1989 and 1991 to present (Affiliate member).

Yuma Pacific Southwest section of AIHA since 1987. President-Elect, 1991; President, 1992; Past-President, 1993; President-Elect, 1995; President, 1996; Past-President, 1997; President-Elect, 2000.

Related Accreditation Commission of the Accreditation Board for Engineering and Technology, 1987 to 1992.

Air & Waste Management Association 1991 to 1995.

American Society of Heating, Refrigerating & Air Conditioning Engineers 1991 to 1995.

Indoor Air International, 1992 to 1995.

Industrial Hygiene Roundtable, 1993 to 1998.

PUBLICATIONS

Jack E. Peterson, P.E. (Wisconsin), CIH, Ph.D.

1. Peterson, J.E., H.R. Hoyle and E.J. Schneider: "The Analysis of Air for Halogenated Hydrocarbon Contaminants by Means of Absorption on Silica Gel," *Am. Ind. Hyg. Assoc. Quart.* 17:429-33 (1956).
2. Peterson, J.E.: "An Approach to a Rational Method of Recommending Face Velocities for Laboratory Hoods," *Am. Ind. Hyg. Assoc. J.* 20:259-266 (1959).
3. Schneider, E.J., J.E. Peterson, H.R. Hoyle, E.H. Ode and B.B. Holder: "Correlation of Industrial Noise Exposures with Audiometric Findings," *Am. Ind. Hyg. Assoc. J.* 22:245-51 (1961).
4. Stewart, R.D., H.H. Gay, D.S. Erley, C.L. Hake and J.E. Peterson: "Human Exposure to Carbon Tetrachloride Vapor," *J. Occup. Med.* 3:586-90 (1961).
5. Stewart, R.D., H.H. Gay, D.S. Erley, C.L. Hake and J.E. Peterson: "Observations on the Concentrations of Trichloroethylene in Blood and Expired Air Following Exposure of Humans," *Am. Ind. Hyg. Assoc. J.* 23:167-70 (1962).
6. Peterson, J.E., R.A. Copeland and H.R. Hoyle: "Health Hazards of Spraying Polyurethane Foam Out-of-doors," *Am. Ind. Hyg. Assoc. J.* 23:345-52 (1962). ("Outstanding Paper" award.)
7. Peterson, J.E. and J.A. Peay: "Laboratory Fume Hoods and Their Exhaust Systems," *Air Condit. Heat Vent.* 63-72 (May 1963).
8. Peterson, J.E.: "Air Conditioning of Research and Test Facilities: Contamination Control," *Am. Soc. Heat Refrig. Air Condit. Eng.* 53-56 (September 1964).
9. Peterson, J.E., H.R. Hoyle and E.J. Schneider: "Applications of Computer Science to Industrial Health," *Am. Ind. Hyg. Assoc. J.* 27:180-85 (1966).
10. Peterson, J.E.: *Human Biothermal Strain in Relation to Environmental Stress Parameters*, Ph.D. Thesis, U. of Michigan (1968). (Available from Xerox University Microfilms, 300 N. Zeeb Rd., Ann Arbor, MI 48106).
11. Stewart, R.D., J.E. Peterson, E.D. Baretta, R.T. Bachand, Jr., M.J. Hosko and A.A. Herrmann: "Experimental Human Exposure to Carbon Monoxide," *Arch. Environ. Health* 21:154-64 (1970).
12. Peterson, J.E. and R.D. Stewart: "Absorption and Elimination of Carbon Monoxide by Inactive Young Men," *Arch. Environ. Health* 21:165-71 (1970).
13. Peterson, J.E.: "Postexposure Relationship of Carbon Monoxide in Blood and Expired Air," *Arch. Environ. Health* 21:172-73 (1970).
14. Stewart, R.D., T.N. Fisher, J.E. Peterson, M.J. Hosko, E.D. Baretta, H.C. Dodd, P.E. Newton, and A.A. Herrmann: "Experimental Human Exposure to Carbon Monoxide," *Proceedings of the First Annual Conference on Environmental Toxicology, 9-11 September, 1970*, Aerospace Medical Research Laboratory, Publication No. AMRL-TR-70-102, pp. 49-75 (1970).

15. Peterson, J.E.: "Experimental Evaluation of Heat Stress Indices," *Am. Ind. Hyg. Assoc. J.* 31:305-17 (1970). ("Outstanding Paper" award)
16. Stewart, R.D., P.E. Newton, M.J. Hosko, J.E. Peterson and J.W. Mellender: "The Effect of Carbon Monoxide on Time Perception, Manual Coordination, Inspection, and Arithmetic, p. 29-60 in *Behavioral Toxicology*, B. Weiss and V.G. Iaries, eds. (Plenum Press, New York) (1972).
17. Stewart, R.D., T.N. Fisher, M.J. Hosko, J.E. Peterson, E.D. Baretta and H.C. Dodd: "Carboxyhemoglobin Elevation After Exposure to Dichloromethane." *Science* 176:295-96 (1972).
18. Stewart, R.D., T.N. Fisher, M.J. Hosko, J.E. Peterson, E.D. Baretta and H.C. Dodd: "Experimental Human Exposure to Methylene Chloride." *Arch. Environ. Health* 25:342-48 (1972).
19. Peterson, J.E. and R.D. Stewart: "Human Absorption of Carbon Monoxide from High Concentrations in Air." *Am. Ind. Hyg. Assoc. J.* 33:293-97 (1972).
20. Stewart, R.D., J.E. Peterson, M.J. Hosko, E.D. Baretta, H.C. Dodd, P.E. Newton, and A.A. Herrmann: "Effect of Carbon Monoxide Upon Human Performance," *Transactions of the Rochester Symposium on Behavioral Psychology* (1972).
21. Stewart, R.D., J.E. Peterson, T.N. Fisher, M.J. Hosko, E.D. Baretta, H.C. Dodd and A.A. Herrmann: "Experimental Human Exposure to High Concentrations of Carbon Monoxide," *Arch. Environ. Health* 26:1-8 (1973).
22. Stewart, R.D., P.E. Newton, M.J. Hosko and J.E. Peterson: "Effect of Carbon Monoxide on Time Perception," *Arch. Environ. Health* 27:155-60 (1973).
23. Peterson, J.E.: "Principles of Controlling the Occupational Environment," Chapter 35, *The Industrial Environment-Its Evaluation and Control*, pp 511-17, NIOSH, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (1973).
24. Stewart, R.D., C.L. Hake and J.E. Peterson: "Degreaser's Flush," *Arch. Environ. Health* 29:1-5 (1974).
25. Stewart, R.D., C.L. Hake and J.E. Peterson: "Use of Breath Analysis to Monitor Trichloroethylene Exposures," *Arch. Environ. Health* 29:6-13 (1974).
26. Stewart, R.D., C.L. Hake, J.E. Peterson, H.V. Forster, P.E. Newton, R.J. Soto and A.J. Lebrun: "Development of Biologic Standards for Trichloroethylene," *Behavioral Toxicology*, Xintaras, Johnson and deGroot, eds pp 81-91, NIOSH, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (1974).
27. Stewart, R.D., C.L. Hake, A.J. Lebrun, J.H. Kalbfleisch, P.E. Newton, J.E. Peterson, H.H. Cohen, R. Struble and K.A. Busch: "Effects of Trichloroethylene on Behavioral Performance Capabilities," *op. cit.* pp 96-129.
28. Stewart, R.D., J.E. Peterson, C.L. Hake, A.J. Lebrun, and P.E. Newton: "Measurement of Physiological and Behavioral Responses in a Controlled-Environment Chamber," *op. cit.* pp 361-375.

29. Stewart, R.D., J.E. Peterson, P.E. Newton, C.L. Hake, M.J. Hosko, A.J. Lebrun, and G.M. Lawton: "Experimental Human Exposure to Propylene Glycol Dinitrate," *Toxicol Appl Pharmacol.* 30:377-95 (1974).
30. Stewart, R.D., C.L. Hake, H.V. Forster, A.J. Lebrun, J.F. Peterson and A. Wu: *Tetrachloroethylene: Development of a Biologic Standard for the Industrial Worker by Breath Analysis*, NIOSH Report #NIOSH-MCOW-ENV-MC-74-6, National Institute for Occupational Safety and Health, Cincinnati, OH (1975), 170 pages.
31. Stewart, R.D., C.L. Hake, H.V. Forster, A.J. Lebrun, J.E. Peterson and A. Wu: *Methylene Chloride: Development of a Biologic Standard for the Industrial Worker by Breath Analysis*, NIOSH Report #NIOSH-MCOW-ENV-MC-74-9, National Institute for Occupational Safety and Health, Cincinnati, OH (1975), 86 pages.
32. Stewart, R.D., C.L. Hake, H.V. Forster, A.J. Lebrun, J.E. Peterson and A. Wu: *Toluene: Development of a Biologic Standard for the Industrial Worker by Breath Analysis*, NIOSH Report #NIOSH-MCOW-ENV-MC-75-3, National Institute for Occupational Safety and Health, Cincinnati, OH (1975), 118 pages.
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38. Hermann, E.D. and J.E. Peterson: "Evaluation," *Fundamentals of Industrial Hygiene*, 2nd ed., Julian B. Olishifski, ed. Chapter 16, pp 501-15, National Safety Council, 444 N. Michigan Ave., Chicago, IL 60611 (1979).
39. Peterson, J.E.: "Calculation of Vapor Penetration in Charcoal Sampling Tubes," *Am. Ind. Hyg. Assoc.* 41:450-51 (1980).
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42. Peterson, J.E.: "Iodine and Compounds," *ILO Encyclopaedia of Occupational Health and Safety*, third (revised) edition, p. 1153, International Labour Office, Geneva, Switzerland (1983).
43. Peterson, J.E.: "Painting and Coating," *Industrial Hygiene Aspects of Plant Operations*, vol. 2, Chapter Fifteen, Cralley and Cralley, eds, John E. Mutchler Associate Ed., Macmillan Publishing Company (1984).

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46. Peterson, J.E.: "Industrial Gases and Vapors," *Toxicology: Principles & Practice*, Volume 2, Chapter 5, Frederick Sperling, Ed., John Wiley & Sons, Inc. (1984).
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48. Peterson, J.E.: "The Philosophy of Occupational Safety and Health Regulation," *Am. Ind. Hyg. Assoc. J.* 49:137-142 (1988). (Henry F. Smyth, Jr. Award Lecture)
49. Peterson, J.E.: "Use and Abuse of Ambient Air Quality Standards to Evaluate Indoor Environments," *Healthy Buildings '88, Volume 3, Systems, Materials and Policies for Healthier Indoor Air*, pp. 687-695, Birgitta Berglund and Thomas Lindvall, eds., Swedish Council for Building Research, Stockholm, Sweden (1988).
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51. Peterson, J.E. and Lawrence W. Keller: "Painting and Coating," *op. cit.*, Chapter 23.
52. Peterson, J.E.: *Industrial Health, 2nd Revised Edition*, American Conference of Governmental Industrial Hygienists, Inc., 6500 Glenway Avenue, Bldg. D-7, Cincinnati, OH 45211-4438, (1991). 350 pages.
53. Peterson, J.E.: Limitations of Ambient Air Quality Standards in Evaluating Indoor Environments. *Am. Ind. Hyg. Assoc. J.* 53:216-220 (1992).
54. Shusterman, Dennis J. and Jack E. Peterson, eds.: *De Novo Toxicants: Combustion Toxicology, Mixing Incompatibilities, and Environmental Activation of Toxic Agents*, *Occup. Med. State Art Rev.* 8:3 July-Sept. (1993).
55. Peterson, J.E.: Toxic Pyrolysis Products of Solvents, Paints, and Polymer Films, *Occup. Med. State Art Rev.* 8:533-547 (1993).

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