

RESUME

February 2, 2004

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WORK EXPERIENCE

1991 to present Sielken & Associates Consulting, Inc., Bryan, TX

Statistically analyze environmental and health data. Data sets include both lab-animal and epidemiological studies. Performed model fitting, Monte Carlo simulation, and cancer risk-assessment analyses using corporate proprietary computer programs (**DistGEN**, **DistFIT**, **GEN.T**, **UNRAVEL**, **UNRAVELN**). Wrote **EXCEL** add-in plotter macros for several of those commercially available software packages, as well as some on-line **WINDOWS** help files. Created **EXCEL** macros, as well as stand-alone **FORTRAN** and **BASIC** computer codes for specialized analyses. Developed **PROMISE** interface and computational code for solvent exposure and uptake assessment. Created Windows versions of the **DistGEN** and **GEN.T** programs. Developed **CARES** interface and database software for water consumption, residue and uptake. Chemicals analyzed include atrazine, simazine, butadiene, dieldrin, and ethylene oxide. Created electronic databases for ethylene oxide and butadiene. Helped write documentation for some of the corporate proprietary software. Contributed to the comprehensive-realism approach to cancer risk assessment by writing a program for the elicitation of expert opinion for use with the proprietary **UNRAVEL** program. Performed Gavrillov/Gompertz-Makeham life table analysis of Pernis (Dutch) epidemiological data and U.S. total mortality and leukemia mortality data. Implemented two-stage carcinogenesis modeling programs, as well as a Poisson regression routine.

1984 to 1989 The Aerospace Corporation, El Segundo, CA.

Member of the Technical Staff for polymers (Materials Science Lab). Duties included consulting with contractors for the U.S. Air Force. Worked on electrical breakdown in polyurethanes, on adhesion mechanisms in moisture-cured siloxanes, on processing problems in EPDM rubber, on degradation of epoxy-polybutadiene elastomers, on the diffusion of corrosive gases in filled polymers, and on thermal conduction in composites. I designed FTIR experiments to monitor the speed of chemical reactions. Applications were to satellites, electronics packaging, thermal protection, propellants, etc. I was responsible for recruiting and supervising one technician.

1980 to 1984 University of Illinois, Urbana, IL.

Research Assistant in polymer science. Primary operator of Nicolet Fourier Transform Infrared Spectrometer (FTIR). Wrote Fortran, Basic, and assembly language programs to adapt FTIR to mechanical & thermal stress-infrared analysis. Theoretically analyzed peak absorption frequency shifts in a model chain in order to predict the ultimate properties of oriented polymers. Defined measurement technique and helped interpret frequency shifts in polyethylene, polypropylene, and polyvinyl chloride. Developed sensitive FTIR method to find relative concentration of residual paracrystallinity in atactic PVC. Gave short courses at the U.I. on FTIR operation and programming and interacted with other U.I. students on their FTIR research.

1979 University of Illinois, Urbana, IL.

Teaching Assistant in introductory physics.

1977 to 1978 Raychem Corporation, Menlo Park, CA.

Electrical engineer (transmission lines). Characterized electrical insulation and coaxial cables in the Wire and Cable Technical Services Lab. Wrote Fortran programs to analyze attenuation of coaxial cable.

1976 Suntek Corporation, Corte Madera, CA.

Vacuum technician working in solar technology.

1974 to 1975 University of California, Berkeley, CA.

Teaching Assistant in introductory physics.

1974 University of Illinois, Urbana, IL.

Computer-conferencing programmer on the PLATO system.

EDUCATIONAL RECORD

technical studies:

University of Illinois, Urbana, IL. Ph.D. in Polymer Science, 1984. Thesis: "Infrared Frequency Shifting in Thermally and Mechanically Stressed Polymers" (Prof. R.P. Wool, advisor). M.S. in Polymer Science, 1980. Thesis: "Quasiharmonic Infrared Bands" (Prof. R.P. Wool, advisor).

University of California, Berkeley, CA. M.A. in Physics, 1976.

University of Illinois, Urbana, IL. B.S. in Engineering Physics, 1974. Member, Tau Beta Pi.

other studies:

Purdue University, West Lafayette, IN. Master of Science in Industrial Administration (M.S.I.A.), 1990. Member, Beta Gamma Sigma.

University of Illinois, Urbana, IL. A.B. in Philosophy, 1974. Member, Phi Beta Kappa.

Technical University of Munich, West Germany. Exchange student in Engineering Physics (no degree), 1971-72.

PUBLICATIONS

1. Sielken, Robert L., Jr., Robert S., Bretzlaff, Ciriaco Valdez-Flores, Donald E. Stevenson, and Geert de Jong (1999). "Cancer Dose-Response Modeling of Epidemiological Data on Worker Exposures to Aldrin and Dieldrin," Risk Analysis, Vol. 6, pp. 1101-1111.
2. Sielken, Robert L., Jr., Robert S. Bretzlaff, and Ciriaco Valdez-Flores (1998). "Probabilistic Risk Assessment for Atrazine and Simazine in Triazine Herbicides: Risk Assessment," ACS Symposium Series 683, Ed. Larry G. Ballantine, Janis E. McFarland, and Dennis S. Hackett, American Chemical Society, Oxford University Press.
3. "Updated Mortality Analyses of Pernis Epidemiological Data on Human Exposures to Aldrin and Dieldrin", by Sielken, R.L. Jr., Bretzlaff, R.S., Stevenson, D.E., and de Jong, G., Human and Ecological Risk Assessment, 4 (1), 201-225 (1998).
4. "Challenges to Default Assumptions Stimulate Comprehensive Realism as a New Tier in Quantitative Cancer Risk Assessment," by Sielken, Robert L. Jr., Bretzlaff, R.S., and Stevenson, D.E., in Regulatory Toxicology and Pharmacology, 21, 270-280 (1995).
5. "Dose-Response Characterization of Life, Death, and Hormesis," by Stevenson, D.E., Bretzlaff, R.S., Sielken, R.L. Jr., and Macdonald, R.L., in Comments Toxicology, Vol. 5, No. 2, pp. 151-180 (1995).
6. "Challenges to Low-Dose Linearity in Carcinogenesis from Interactions Among Mechanistic Components as Exemplified by the Concept of 'Invaders' and Defenders'," by Stevenson, D.E., Sielken, R.L. Jr., and Bretzlaff, R.S., in Belle Newsletter, Vol. 3, No. 2, pp. 1-8 (1994).
7. "Incorporating Additional Biological Phenomena Into Two-Stage Cancer Models," by Sielken, Robert L. Jr., Bretzlaff, R.S., and Stevenson, D.E., in Receptor-Mediated Biological Processes: Implications for Evaluating Carcinogenesis, pp. 237-260, ed. by H. Spitzer, T. Slaga, W.F. Greenlee, and M. McCain, Wiley-Liss, New York (1994)

8. "Diffusant-Immobilization and Medium-Degradation Effects in the Diffusion of Chemically Reactive Gas through Layered Polymers," with R. Sugihara, J. Appl. Phys., 66, 2367 (1989).
9. "Apodization Effects in Fourier Transform Infrared Difference Spectra," with T. B. Bahder, Revue Phys. Appl., 21, 833 (1986).
10. "Adhesion and the Surface Behavior of the Silicone Elastomer, RTV-142," with Andre' Lee and T. A. Freitag, Polym. Engr. Sci., 26, 931 (1986).
11. "Infrared and Raman Spectroscopy of Stressed Polyethylene," with R.P. Wool, et al., J. Polym. Sci. (Phys. Ed.), 24, 1039 (1986).
12. "Radiant - Energy Penetration Effect in the Thermal - Diffusivity Technique for Layered and Porous Polymers," (sole author), J. Appl. Phys., 58, 2816 (1985).
13. "Spectroscopic Observations on Nonequilibrium Glassy Poly(vinyl chloride) and Polystyrene," with B. L. Joss and R. P. Wool, Polym. Engr. Sci., 24, 1130 (1984).
14. "FTIR Studies of Polypropylene during Mechanical Deformation," with Y. L. Lee and R. P. Wool, J. Polym. Sci. (Phys. Ed.), 22, 681 (1983).
15. "FTIR Detection of Frequency Shifting in the Nonequilibrium Glassy State of Polymers," with B.L. Joss and R.P. Wool, J. Appl. Phys., 54, 5515 (1983).
16. "Frequency Shifting and Asymmetry in Infrared Bands of Stressed Polymers," with R.P. Wool, Macromolecules, 16, 1907 (1983).
17. "Temperature Effect in Quasiharmonic Infrared Bands of Stressed Polymers," with R.P. Wool, J. Appl. Phys., 52, 5964 (1981).

TECHNICAL PRESENTATIONS

1. Poster session on Two-Stage Carcinogenesis Modeling at the Seventh International Conference on Carcinogenesis and Risk Assessment, Barton Creek Conference, Austin, TX, December 1993.
2. Second International Conference on Conduction and Breakdown in Solid Dielectrics, Erlangen, West Germany, July 1986: speaking on polyurethane electrical insulation.
3. American Physical Society (March meeting of the High Polymer Physics section), speaking on:
 - Corrosive-gas diffusion in polymers, 1989;
 - Polyurethane electrical insulation, 1985-86;
 - Infrared properties of stressed polymers, 1982-83.
4. Conference on Electrical Insulation and Dielectric Phenomena, Buffalo, NY, October 1985: speaking on degradation of polyurethane electrical insulation.

TECHNICAL REPORTS

1. "Adhesion in Chemically Hostile Environments: The Use of Filled Polymers as Diffusion Barriers," Aerospace TR-88-3935-03-1, 1988.
2. "Investigation of Flow of Epoxy-Polybutadiene Used on TVOPA-based Propellant," Aerospace TOR 86A-2427-04-1, 1987.
3. "FTIR Study of Aging in Commercial Polyurethane," Aerospace TR 86-6925-08-3 and -4, 1986 and 1987.
4. "Prebreakdown Phenomena in Electrically Aged Polymeric Insulation," Aerospace ATR 86-8480-1, 1986.
5. "Investigation of Blistering in IUS Propellant Tank Expulsion Diaphragms," Aerospace TOR 84A-5464-08-2, 1985.