

Paul Douglas Seemuth

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Business Focus: Development and Growth of Organizations towards Scientific and Business Excellence fostering Responsibility and Accountability within the Global Economy.

Educational Degrees:

- Ph.D. Organic Chemistry, University Of Cincinnati, 1978
- M.S. Organic Chemistry, Purdue University 1975
- B.S. Chemistry and Mathematics, Bowling Green State University 1973

Employment:

- **2004 - present, CEO: Tribology Consulting International LLC**
 - Consulting References
 - Toyota-Tsusho (formerly Tomen)
 - Gerson Lehrman Group
 - Witmans Engineering, Mumbai, India
 - Hunt Bio-Solutions Inc.
 - MAQUET Cardiovascular
 - Serica Technologies
 - Cuning and Associates LTD
 - Premiere Fibers, Inc.
 - SSC Industries
 - Zschimmer and Schwarz, US Division
 - Porex Technologies
 - Star Holdings, Inc.
 - Optimer Inc
 - Georgia Easter Oil Co
- **2010-present: Consultant to Hunt Bio-Solutions Inc, Woodlands TX**
- **2010-present: Assistant Professor of Chemistry – Chattanooga State**
- **2005-2010: Adjunct Professor of Chemistry – Chattanooga State Community College**
- **2008- 2009: acting Chief Technology Officer: Georgia Easter Oil Company**

- **2008 - 2010: acting Chief Technology Officer: Hawkeye Process Technology Systems**
- **2005 ongoing: Computer Technology Management / IT Support: Amani Foundation Inc., USA, Amani ya Juu, Nairobi, Kenya and ABC University, Liberia, Africa**
- **2006-11/2008: Vice President – Global Development for SSC Industries**
- **1984 - 2004: E. I. DuPont de Nemours and Co., Inc.**
 - Global Technology Leader/ Senior Research Associate: 2002-2004
 - T-95 Finish Engineering and Design Director / Senior Research Associate: 1997-2002
 - Fiber Spinning/Finish Design Leader / Research Associate – Fiber Engineering Technology Center: 1995-1998
 - Research Associate – Fiber Engineering Technology Center / Fiber Finish Development: 1993-1995
 - Research Associate: Fiber Surface Research: 1992-1993:
 - Senior Research Chemist – Fiber Surface Research: 1990-1992
 - T90 Finish Design Leader / Senior Research Chemist – Fiber Surface Research: 1987-1990
 - Senior Chemist – Fiber Surface Research: 1984-1987
- **1980-1984: Ethyl Corporation (currently Albemarle)**
 - Research Chemist – Pioneering Research: 1981-1984
 - Chemist – Polymer and Automotive Additives: 1980-1981
- **1978-1980: Schering-Plough Pharmaceuticals**
 - Post-Doctoral Chemist – Exploratory / Fundamental Drug Design

Experience:

- Global Consultant in the fields of Tribology (Friction and Wear Science and Technology), Fuel, Lubrication Fluids, Chemicals, and Polymers
- Global Technology Leader for DuPont (currently INVISTA Inc.) Finish Research, Development, Environment, Regulatory and Operations
- Engineering Design Director of Fiber Finish Production Facilities and Operational Start-ups for new DuPont Fiber global sites
- Global Development Leader for Tribologic and Fiber Finish Research
- Fundamental Research and Applied application of Tribologic Principles for Fiber Production and Use
- Extensive Fiber Finish Formulation Developments for polyester, polyamide, spandex and aramid systems
- Industry Recognized for Scientific Expertise and Contributions In Finishes and Polymer Processing
- Polymer End use Processes and Fabric Defect Analysis Knowledge
- Broad experience in fundamental and applied Chemical processes
- Fiber operations and spinning knowledge
- Extensive Patent and Publications in diverse Scientific areas

- Reviewer of National Textile Center's Research Programs
- Reviewer for Paper submissions for various Scientific Journal
- Joint University and Industrial Research Efforts
- Corporate Technology Policy and Direction
- Six Sigma Certified

Patents and Publications:

- 1). Paul D. Seemuth and Hans Zimmer; **Germanium, Tin and Lead, Annual Reports in Inorganic and General Chemistry-1976**, Academic Press, New York (1977)
- 2). Hans Zimmer, W. W. Hillstrom, James C. Schmidt, Paul D. Seemuth and R. Vogeli; **α -Substituted gamma-Lactones (XXVIII). 3-(Phenylmethylene)-2,4 (3H, 5H)-Furandiones**, presented at the 174th National ACS Meeting, Chicago, IL. August 1977
- 3). Hans Zimmer, W. W. Hillstrom, James C. Schmidt, Paul D. Seemuth and R. Vogeli; **α -Substituted gamma-Lactones (XXVIII). 3-(Phenylmethylene)-2,4 (3H, 5H)-Furandiones**, J. Org. Chem. **43**, 1541 (1978)
- 4). Paul D. Seemuth and Hans Zimmer; **α -Heterosubstituted Phosphonate Carbanions VII: Synthesis of Deoxybenzoins and Benzo[b]furans**, J. Org. Chem., **43**, 3063 (1978).
- 5). Hans Zimmer, Dilip Nene, R. E. Koenigkramer and Paul D. Seemuth; **α -Heterosubstituted Phosphonate Carbanions: Useful Tools in Organic Synthesis**, presented at the 176th National ACS Meeting, Miami Beach, FL, September 1978.
- 6). Paul D. Seemuth; U. S. Patent 4,317,934. March 2, 1982.
- 7). Diane Grob Schmidt, Paul D. Seemuth and Hans Zimmer; **2,4(3H, 5H)-Furandiones: Heteroannelations with Aromatic o-Amino Carbonyl Compounds and Condensations with vic-Polyols**, J. Org. Chem., **48**, 1914 (1983).
- 8). Paul D. Seemuth; U. S. Patent 4,405,333. September 20, 1983.
- 9). Paul D. Seemuth; U. S. Patent 4,405,334. September 20, 1983.
- 10). Paul D. Seemuth; U. S. Patent 4,405,335. September 20, 1983.
- 11). Paul D. Seemuth; U. S. Patent 4,421,522. December 20, 1983.
- 12). Paul D. Seemuth; U. S. Patent 4,457,763. July 3, 1983.
- 13). Paul D. Seemuth; U. S. Patent 4,459,419. July 10, 1983.
- 14). Paul D. Seemuth, Allen H. Filbey, James B. Hinkamp and Samuel G. Thomas; Eur. Appl. 83108081.7

- 15). Paul D. Seemuth, G. G. Knapp and M. S. Baylerian; U. S. Patent 4,479,905 October 30, 1984
- 16). Paul D. Seemuth; U. S. Patent 4,522,630; June 11, 1985.
- 17). Paul D. Seemuth; U. S. Patent 4,536,190. Aug. 20, 1985.
- 18). Paul D. Seemuth; Eur. Appl. 84904281.
- 19). Paul D. Seemuth; U. S. Patent 4,554,387. Nov. 19, 1985.
- 20). Paul D. Seemuth; **Chemical, Physical and Structure-Property Relationships of Finish Finishes and Components**, presented at the 198th National ACS Meeting, August, 1989.
- 21). Paul D. Seemuth; **Aqueous emulsion finishes for Spandex Fibers containing Polydimethyl siloxane and ethoxylated long-chain Alkanol**, U. S. Patent 4,999,120, March 12, 1991.
- 22). Paul D. Seemuth, Cynthia H. Kirschner, Sheri Jordan and Larry Taylor; **Feasibility of Extraction and Quantification of Fiber Finishes via On-Line SFE/FT-IR**, presented at the Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March 1992.
- 23). Paul D. Seemuth, Cynthia H. Kirschner, Sheri Jordan and Larry Taylor; **Feasibility of Extraction and Quantification of Fiber Finishes via On-Line SFE/FT-IR**, presented at the 4th International Symposia on Supercritical Fluid Chromatography and Extraction, Cincinnati, OH, May 1992.
- 24). Paul D. Seemuth, Sheri L. Jordan and Larry. T. Taylor; **Coupled SFE-FTIR for Quantification of Fiber Finishes and Polymer Components**, presented at Southeast regional American Chemical Society, East Johnsonville, and TN. October 1993.
- 25) Paul D. Seemuth, Sheri Jordan and Larry Taylor; **Extraction and Quantification of Dacron* Fiber Finish via SFE/FT-IR**, presented at the Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, Atlanta GA, February 1994.
- 26). Paul D. Seemuth, Cynthia H. Kirschner, Sheri Jordan and Larry Taylor; **Feasibility of Extraction and Quantification of Fiber Finishes via On-Line SFE/FT-IR**, Analytical Chemistry, 66, 882 (1994).

- 27). Paul D. Seemuth; *Invited Speaker* – **“Dupont Environmental Fiber Finish Technologies”**, Environmental Sharing Conference, Spartanburg SC, May 1994.
- 28). M. B. Anderson and P. D. Seemuth; **Bioabsorbable Filaments and Their Production**, U. S. Patent 5,288,516, August 1994.
- 29). Paul D. Seemuth; *Invited Speaker* - **“Cradle to Grave”: Exposure to Fiber Finishes, Fiber Finish Chemistry** - Health and Environmental Conference sponsored by American Fiber Manufacturers Association, Inc., September, 1994.
- 30). Paul D. Seemuth; **Coupled SFE/FT-IR for Quantification of Fiber Finishes and Polymer Components**, presented at the AIChE meeting, San Francisco, CA, November 1994.
- 31). Paul D. Seemuth, Sheri Jordan and Larry Taylor; **Extraction and Quantifying a Polyester Fiber Finish using On-Line SFE/FT-IR with Intermediate Trapping**, Textile Research Journal, 65, 230 (1995).
- 32). Paul D. Seemuth, Phillip B. Liescheski, Dale L. Clay, Joe Tehrani and Terry O. Trask; **Automated SFE with On-Line Spectroscopic Analysis**, presented at the Pittsburgh Conference and Exposition on Analytical Chemistry and Applied Spectroscopy, Chicago, IL, February, 1995.
- 33). Paul D. Seemuth - *Invited Lecturer* – **“Fundamental Interactions of Wetting Phenomena and Finish Compositions”**, Wetting Fundamental Conference, Charlotte, NC, June 1995.
- 34). Paul D. Seemuth, Terry O. Trask, and Phillip B. Liescheski, **Analysis of Fiber Finishes Using SFE Coupled to a Simple, Universal IR Flow Cell**, Textile Research Journal, 66(7) 436, 1996.
- 35.) Paul D. Seemuth - *Invited Speaker* - *Fiber Society*, **“Supercritical Fluid Technology Applied to Textile Fiber Applications”**, presented May 1996.
- 36.) Paul D. Seemuth, **Structure-Property Relationships for Fiber Finishes and Components**, presented at the 46th Canadian Chemical Engineering Conference, September 29-October 2, 1996
- 37.) Paul D. Seemuth, **Environmentally Friendly Supercritical Fluid Technologies Applied to the Fiber Industry**, presented at the 46th Canadian Chemical Engineering Conference, September 29-October 2, 1996

- 38.) Paul D. Seemuth - *Invited Speaker - Corporate Analytical Symposia*, **Fiber Finish Competitive Analysis or What has the Other guy got that we should know about?** presented October 1996.
- 39.) Paul D. Seemuth - - *Invited Speaker: Textured Yarn Association of America*; **“High Temperature Short Heater Texturing Finishes: Facts and Fiction”**, presented February 19, 1997
- 40.) Paul D. Seemuth – *Invited Speaker. Textured Yarn Association of America Conference*: **“FINISH TECHNOLOGY FOR POY / DTFY”**, presented Aug 2002,
- 41.) Paul D. Seemuth, Bennett Baird, and Nancy Singletary: **“Amide Amine-End Protection”**, Patent pending Nov. 2003
- 42.) Seemuth, P. D and Potter, J. F., **Lubricated Fluoropolymer Yarn**, U. S. Patent 6,764,762, July 2004
- 43.) Paul D. Seemuth, **“Textile Fibers / Fabrics”**, Handbook of Lubrication and Tribology, Volume I Application and Maintenance, Second Edition, CRC Press: Taylor and Francis Group, 2006
- 44.) Paul D. Seemuth – *Invited Speaker, 46TH DORNBIRN MAN-MADE FIBERS CONGRESS, AUSTRIA*, **“Fiber Finish Tribology”**, September 2007
- 45.) Paul Seemuth, **Section Editor: “Encyclopedia of Tribology: Textile Tribology”** Springer Publishing, in progress.

Professional Service:

- Fellow, Royal Society of Chemistry, London
- National Textile Center Technical Advisory Board
- Advisor – NTC funded Projects
- American Fibers Manufacturing Board, Fiber and Finish Committee
- Member, American Chemical Society
- Member, Textured Yarn Association of America
- Member, Fiber Society
- Consultant, AMTEX
- Member, ASTM International
- Member, Society of Tribologists and Lubrication Engineers