

Michael Rene Weaver  
Curriculum Vitae

**FORMAL EDUCATION:**

<u>Date</u>	<u>Institution</u>	<u>Degree</u>	<u>Major</u>
1989	University of Utah	Ph.D.	Physical Analytical Chemistry
1983	Northern Arizona University	B.S.	Chemistry

**PREVIOUS WORK EXPERIENCE:**

<u>Employment Years</u>	<u>Employer's Name</u>	<u>Brief Job Description (Position and Responsibilities)</u>
11/1989 - 05/2010	Procter & Gamble	Research Scientist – Analytical Chemistry
09/1983 -11/1989	University of Utah	Teaching and Research Assistant

**EXPERIENCE AT P&G**

<u>Years</u>	<u>Position and Responsibilities</u>
05/11/2009 – present	<b>Principal Scientist, Analytical Discovery, Corporate Engineering Technical Laboratories.</b> <i>Fundamental mechanistic understanding studies of colloidal systems, especially product stability and performance. Development of process transformation understanding and inline sensors.</i>
10/01/2007 – 05/10/2009	<b>Principal Scientist, Analytical Discovery, Miami Valley Innovation Laboratories.</b> <i>Fundamental mechanistic understanding studies of colloidal systems, especially product stability.</i>
12/01/2004 – 09/30/2007	<b>Principal Scientist, HHC Analytical Sciences - Household Care Innovation Center.</b> <i>Physical Measurements Laboratory (rheology/thermal methods/XRD/ particle size/aerosol particle size). Product stability and product performance understanding across all platforms in global Household Care Business.</i>
10/01/1999 – 11/30/2003	<b>Senior Scientist, F&amp;HC Analytical Sciences - Household Care Innovation Center.</b> <i>Directed Physical Measurements Laboratory (Rheology/Thermal Methods/XRD Methods/Aerosol Particle Size). Product stability and product performance fundamental understanding across all platforms in F&amp;HC GBU</i>
01/01/1995 – 09/30/1999	<b>Senior Scientist in LC&amp;P PS&amp;AS Analytical Section - Sharon Woods Technical Center.</b> <i>Fabric Enhancers Analytical Coordinator responsible for current business and new liquids initiatives; rheology; and chromatography</i>
06/15/1994 - 12/31/1994	<b>Scientist in LC&amp;P PS&amp;AS Analytical Section- Sharon Woods Technical Center.</b> <i>Fabric Enhancers Analytical Coordinator. Responsible for the analytical support of Liquid Fabric Conditioner initiatives.</i>
11/10/1989-06/15/1994	<b>Staff Chemist working in LC&amp;P Analytical Section – Sharon Woods Technical Center.</b> <i>Global Oleochemicals (formerly Chemicals Division PDD Analytical Section). Responsible for Analytical Support of Current Business Projects(Fatty Acid, Amines, Alcohols, Methyl Esters, Amine Oxide, AGS), and New Surfactant/Chemicals Development (including bleach activators, biodegradable surfactants, emulsifiers, mild surfactants for bar soaps, food grade fatty acids).</i>

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### **PUBLICATIONS:**

"In-Situ Fluorescence Studies of Aluminum Ion Complexation by 8-Hydroxyquinoline Covalently Bound to Silica." M. R. Weaver and J. M. Harris; Analytical Chemistry 61, (1989),1001-1010.

"Anticipating Colloidal Instabilities in Cationic Vesicle Dispersions By Measuring Collective Motions Using Dynamic Light Scattering." M. L. Lynch, T. Kodger, and M.R. Weaver; Journal of Colloid and Interface Science 96, (2006), 599-607.

"Control of Enzyme Containing Aerosols in the Manufacturing Environment" M.R. Weaver, R. J. Hunt; S. R. Sealschott and T. M. Rothgeb. Draft in preparation.

### **PATENTS:**

"Clear or Translucent Aqueous Fabric Softener Compositions Containing High Electrolyte and Optional Phase Stabilizer" US6875735 granted 04/05/05. Gayle Marie Frankenbach, Ellen Schmidt Baker, Rebecca Gayl Baker, Marc Johan Declercq, Hugo Jean Marie Demeyere, Ryan Matthew Heiden, Charles Albert Hensley, Brent Alan Kolb, Ruth Anne Murphy, Ronald Edward Pegoli, Toan (nmn) Trinh, Errol Hoffman Wahl, Michael R. Weaver, Dean Larry DuVal, John Henry Shaw, Jr., Masae (nmn) Nogami, Ronghui (nmn) Wu.

"Clear or translucent aqueous fabric softener compositions containing high electrolyte." US6995131 granted 02/7/06. Dean L. Duval, Mike R. Weaver, Errol H. Wahl, Toan Trinh, Ronald E. Pegoli, Masae Nogami, Hugo Demeyere, Marc Declercq, Ellen S. Baker, Gayle M. Frankenbach, John H. Shaw.

"Detergent tablets comprising solubility aids" US7033988 granted 05/01/2006. Kevin T. Norwood, Michael R. Weaver, Gayle M. Frankenbach and Robert A. Modi.

"Improved Solubility Aids for use in tablet detergent compositions." PCT Int Appl (2003) WO2003062360 filed 07/31/03. Gayle M. Frankenbach, Rajeev A Modi, Kevin T. Norwood, Michael R. Weaver.

"Clear or translucent aqueous fabric softener composition." US7037887 granted 05/04/06. Ronald Pegoli, John Shaw, Mike Weaver, Errol Wahl, Gayle Frankenbach, Toan Trinh, Masae Nogami, Hugo Demeyere, Marc Declercq, Ellen Baker.

"Volatile Material-Containing Compositions Having a Consistent Release Profile." (European Patent Office) Application No/Patent No 05790844.4-2113-US2005029794 filed 03/23/07. Fernando Tollens, Jonathan R Cetti, Michael Rene Weaver, Glenn T. Jordan, Christaain A. J. K. Thoen, Zaiyou Liu.

"Multiple Use Fabric Softening Composition with Reduced Fabric Staining" European Patent PCT/IB2006053450 granted 04/25/08. Steve Sealschott, Mike Weaver, Jackie Duderstadt, Jiping Wang, Fernando Tollens, JJ Tee.

"Multiple Use Fabric Softening Composition with Reduced Fabric Staining" European Patent PCT/IB2006053449 granted 04/25/08. Steve Sealschott, Mike Weaver, Jackie Duderstadt, Jiping Wang, Fernando Tollens, JJ Tee.

"Multiple Use Fabric Softening Composition with Reduced Fabric Staining" US Patent 7553808 issued 06/30/09. Steve Sealschott, Mike Weaver, Jackie Duderstadt, Jiping Wang, Fernando Tollens, JJ Tee.

"Liquid Laundry Detergent Having Improved Brightener Stability" European Patent PCT/IB2006054642 granted 7/11/08. ." Eva Schneiderman, Fredric Rea, Pauline Vu, Michael Weaver, Donna Wiedemann, David Rollins.

"Liquid Laundry Detergent Having Improved Brightener Stability ." US Application 2008146482 Filed: 6/19/06 Eva Schneiderman, Fredric Rea, Pauline Vu, Michael Weaver, Donna Wiedemann, David Rollins.

"Liquid Laundry Detergent Having Improved Brightener Stability." PCT Int. Appl (2007) WO 2007066302, filed 06/14/07 2007:642909 Eva Schneiderman, Fredric Rea, Pauline Vu, Michael Weaver, Donna Wiedemann, David Rollins.

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### **ORAL PRESENTATIONS:**

"In-Situ Fluorescence Studies of Metal Chelates Covalently Bound to Silica." M. R. Weaver and J. M. Harris. Meeting of the Federation of Analytical Chemists and Spectroscopic Society, St. Louis, MO. October 1986.

"In-Situ Spectroscopic Studies of the Kinetics of Aluminum Ion Complexation by 8-Hydroxyquinoline Covalently Bound to Silica." M.R. Weaver, S.F. Simpson, and J.M. Harris. 196th Meeting of the American Chemical Society, Los Angeles, CA. September 1989.

"Development of a Predictive Stability Test for FCC96 Downy Formulations" M. R. Weaver, J.T. Webber, F&HC Analytical, Sharon Woods Technical Center; and J.L. Burns, Corporate Research Division, Miami Valley Labs –P&G Analytical Symposium, 1997

"Lab Simulation of Laundry Liquid Aerosolization in the Manufacturing Environment: Fundamental Understanding and Application of Reduction Strategies to Reduce Enzyme Containing Aerosols" M. R. Weaver, S.R. Sealschott, and T.M. Rothgeb; F&HC Analytical - P&G Physical Chemistry Seminar; December 2001

"A Generic Approach for Developing Predictive Methods for Physical Stability". M. R. Weaver, J.T. Webber and P. C. Vu; F&HC Analytical, Ivorydale Technical Center; P&G Stability Symposium, September, 2002.

### **POSTERS:**

"On-line Process Titrator for Low Iodine Value"; W. J. Hughes and M. R. Weaver, Chemicals Analytical Sciences, Sharon Woods Technical Center; P&G ACC Symposium, 1992.

"Applications of Rheological Measurements to Solve Company Problems"; M.R. Weaver, L&CP Analytical Sciences, Sharon Woods Technical Center; G.M. Frankenbach, L&CP Product Development, Sharon Woods Technical Center; and W. H. Hartt, Corporate Engineering, Este Technical Center; P&G Colloid Symposium, 1998

"Clear Fabric Conditioners: Microstructure and Physical Properties of a Semi-Non-Aqueous Surfactant System"; G.M. Frankenbach, L.M. Meyers, L&CP Product Development, Sharon Woods Technical Center; J.L. Burns, C.D. Eads, L.C. Robosky, Corporate Research Development, Miami Valley Laboratories; M. R. Weaver, J.T. Webber, L&CP Analytical Sciences, Sharon Woods Technical Center; and W. H. Hartt, Corporate Engineering, Este Technical Center - P&G Colloid Symposium, 1998.

"Application of Rheology to Understand Dilution Viscosity Thickening in Aladdin". J. L. Burns and M. L. Lynch Corporate Research Development, Miami Valley Laboratories; G. M. Frankenbach, F&HC Product Development; J. T. Webber and M. R. Weaver, F&HC Analytical Sciences, Sharon Woods Technical Center. P&G Analytical Symposium, 1999.

"A New Rheological Technique to Predict Stability in a Structured Laundry Liquid Product (Pegasus)"; J. T. Webber and M. R. Weaver F&HC Analytical Sciences, Sharon Woods Technical Center; P&G Analytical Symposium, 1999.

"Physical Characterization of CLASS Structuring Agents for Laundry Liquids;" C. K. Vu, R. J. Bacon, J. C. King, L. D. Waits; F&HC Analytical Sciences, Ivorydale Technical Center; J. T. Webber and M. R. Weaver; F&HC Analytical, Sharon Woods Technical Center; P&G Analytical Symposium, 1999.

"Physical and Chemical Characterization of Microfibers;" R. J. Bacon, R.D. McLane, G. F. Murray, M. R. Weaver; F&HC Analytical Sciences, Ivorydale Technical Center; Z. Liu, F&HC Analytical Sciences, Sharon Woods Technical Center; W. Spindel Technology Development, Ivorydale Technical Center P&G Analytical Symposium, 2000.

"Development of a Predictive Stability Test for Precipitation of Brightener in Liquid Laundry Products". P.C. Vu, R.J. Bacon, D.L. Haigis, T.M. Rothgeb, M. R. Weaver; F&HC Analytical Sciences, Ivorydale Technical Center. J.D. English, F&HC Product Development, Ivorydale Technical Center; and S. E. Forest, S.M. Krummen, M.R. Mootz, Corporate Research Development, Miami Valley Laboratories; P&G Analytical Symposium, 2001.

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“Predicting Physical Stability Using Static and Dynamic Light Scatter”.

Matt Lynch, Tony Dirr, Corporate Research Development, Miami Valley Laboratories; Michael Weaver, Ivorydale Technical Center; F&HC Analytical Sciences; P&G Stability Symposium, 2002

“Using Controlled Relative Humidity-Xray Diffraction with Dynamic Vapor Sorption to Understand Cause of Recycle Stream Fouling in Manufacture Process of Japan Bold Granules”. S. R. Sealschott, P.C. Vu, M.R. Weaver F&HC Analytical Sciences, Ivorydale Technical Center –P&G Analytical Symposium, 2003

“Use of High Molecular Weight Polyethylene Oxide During Washdown Procedures to Reduce Sensitizing Aerosols in the Manufacturing Environment”. M.R. Weaver, S.R. Sealschott, T.M. Rothgeb; F&HC Analytical Sciences, Ivorydale Technical Center; and R. J. Hunt, Professional Regulatory Sciences, Ivorydale Technical Center. 95<sup>th</sup> Meeting of American Oil Chemist Society, May 10, 2004.

“Predicting Physical Stability in Household Care Products – Approach and Practical Considerations in Roll Out” S.R. Sealschott M.R. Weaver, Aspire seminar series November 2007.

### **PROFESSIONAL MEMBERSHIPS:**

American Chemical Society  
American Rheology Society

### **HONORS AND AWARDS:**

American Chemical Society Analytical Chemistry Award, Northern Arizona University (1982).  
American Institute of Chemists Award, Northern Arizona University (1983)  
Departmental Scholarship, University of Utah (1983-1984)  
Procter & Gamble Recognition Shares; 2002  
Global Analytical Council Award, 2002  
Special Appreciation Award, Symphony Project; Procter & Gamble. April, 2003.  
Global Analytical Council Award, 2006