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Meyer R. Rosen

CPC, CChE, FAIC, FRSC, DABFET

CONSULTING CHEMIST & CHEMICAL ENGINEER

Chemical Technology Assessment; Intellectual Property; Cosmetic and Industrial Product Development; Creation of new applications and Technical Marketing/Editing forSpecialty Chemicals (over 20 Patents); International experience.

Fellow: American Institute of Chemistry &Royal Society of Chemistry (London)

PUBLICATIONS

Editor-in-Chief: Eurocosmetics Magazine (Germany)

Editor-in-Chief of Harry's Cosmeticology, 9th Edition: http://www.chemical-publishing.com/category_s/44.htm

Lead Author, Editor, and Series Editor for Elsevier Publishing; Chief Scientific Advisor for HBA Global Expo and Director of Technical Conferences; Organizer for International Safety, Regulatory and CertificationPrograms.

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CONSULTING SERVICES

IDEATION:

- Catalyst for Novel Thinking
- Applications Oriented
- Creative Technical Solutions
- Technology Transfer
- Strategic Planning & Implementation

TECHNICAL INFORMATION

- Patent Analysis and Litigation Support
- Custom Market Research
- Chemical Technology Assessment & Evaluation
- Capture & Presentation of Complex Information
- Mind Mapping Training & Applications

TECHNICAL MARKETING

- Technical Writing
- Professional Technical Content Editing
- Event Planning & Meeting Facilitation

Meyer R. Rosen is Founder & President of Interactive Consulting, Inc. (https://www.chemicalconsult.com/). His company is a technology-based consulting firm committed to Creating&Facilitating breakthroughs in market, product & process development. He also provides both consulting and testifying services in support of attorneys and insurance companies in: Intellectual Property, trade secret issues andproduct liability/personal injury case litigation.

Mr. Rosen is a Thought-Leader and expert in the field of Specialty Chemicals andtheir multi-industry technical and marketing applications. These include, but are not limited to: surfactants, polymers, chemical fluids, and Organosilicones as well as their physical and chemical behavior. Mr. Rosen also specializes inapplied rheology (fluid flow) and applied surface chemistry. He has also conducted advanced training in the custom preparation of Mind-Maps® and their direct application in knowledge- mapping and patent analysis.

Meyer has extensive experience in the practical application of fundamental principles to a wide variety of market development & technological issues associated with the Specialty Chemicals & Allied Industries. For more than thirty-five years, Mr. Rosen has consulted for hundreds of corporations involved in the development, optimization, patenting, marketing and quality control of new and existing products and processes.

CREDENTIALS & AFFILIATIONS

Mr. Rosen is a Chartered Chemist and Fellow of the Royal Society of Chemistry (London); a Fellow of the American Institute of Chemists and both a Certified Professional Chemist and Certified Professional Chemical Engineer (National Certification Commission in Chemistry and Chemical Engineering). He served as Chief Scientific Advisor to United Business Media Technical Conferences and Director of United Business Media Technical Conference Planning for six years.

Meyer was voted the “most creative, innovative and productive member of a nationally selected group of 25 top scientists and technologists during a three- day Ideation program for the 3M Company. He was also selected as a Vaaler Awards judge for 2003 by Chemical Processing Magazine. The awards competition honors products that improved operations or lowered costs for the chemical processing industry.

Mr. Rosen was the winner of the Albert Nelson Marquis Lifetime Achievement Award and his biographical profile is listed in the Marquis Biographies Online Registry. 12/19/2019

Meyer has also served as Editorial Board Member of the Knovel Corporation which provides unique interactive access to scientific data to over 600 subscribing institutions and twenty content collections. He is a member of the New York Society of Cosmetic Chemists and and has been an advisor to the Executive Director of the National Society of Cosmetic Chemists. Meyer is also a member of the American Institute of Chemical Engineers, a former Director of the American Institute of Chemistsand past Vice President of the Association of Consulting Chemists. He has also served on the Scientific Advisory Board of Supply Side West/East: Virgo Publicationsand Founder, Organizer and co-moderator for HBA’s Annual International Safety, Regatory and Certification Symposia.

Mr. Rosen is a past Vice President of the Association of Consulting Chemists and Chemical Engineers and served on its Executive Board of Directors. He is a voting member of several Standards-Making Committees of the American Society of Testing Materials (ASTM). These committees include: halogenated organic solvents, fire- extinguishing agents, fire standards, industrial chemicals, and hazard potential of chemicals. He also serves on several other ASTM committees including: forensic sciences, occupational health and safety, consumer

products, hazardous substances, and industrial chemicals. Mr. Rosen has extensive experience in the preparation and analysis of Safety Data Sheets, as well as the filing of Regulatory Applications for the Environmental Protection Agency. He has advanced training as a nationally certified fire and explosion investigator (CFEI): 2001, 2011, and 2016.

•**American Society for Testing & Materials (ASTM) Committees:**

D-1 Paint & Related Coatings, Materials & Applications

D-3 Gaseous Fuels

D-12 Soaps & other Detergents

D-13 Textiles

D-14 Adhesives

D-26 Halogenated Organic Solvent & Fire Extinguishing Agents

E-5 Fire Standards

E-15 Industrial Chemicals

E-27 Hazard Potential of Chemicals

E-30 Forensic Sciences

E-34 Occupational Health & Safety

E-35 Pesticides

E-48 Biotechnology

E-51 Environmental Risk Management

F-15 Consumer Products

F-20 Hazardous Substances & Oil Spill Response

Peer Reviewer: Professional Journals

Journal of Chemical Education
Journal of Cosmetic Science, Official Journal of the Society of Cosmetic Chemists

The Chemist

Journal of Testing and Evaluation (American Society of Testing Materials-ASTM)
Cosmetics & Toiletries
Journal of Controlled Release Society
EuroCosmetics Magazine (Germany)

Book Editor- in- Chief (Chemical Publishing Company)

● ***"Harry's Cosmeticology, 9th Ed, (2015)***. The most popular book in the cosmetic and personal care industry over the past 60 years. This encylopedic book surveys, in depth, the technology, science, marketing, manufacturing and ingredients related to the beauty industry. It is 2,600 pages, in three volumes, and has contributions from over 150 global author experts.The 3 volume book has been cited by the International Federation of the Society of Cosmetic Industry (IFSCC) as one of the top three classics of cosmetic science education. It is also available in a variety of shorter Focus Books on individual topics from Harry's Cosmeticology. **http://www.chemical-publishing.com/category _s/44.htm**

Book Editor (Elsevier Publishing)

● ***"Delivery System Handbook for Personal Care and Cosmetic Products: Technology,Applications and Formulations",***Meyer R. Rosen, Editor, 1,100 pages (2005). This book captures over forty different delivery system approaches for use in the cosmetic and pharmaceutical industries. It was the first of its kind to recognize the emerging new science of Delivery Systems.

Book Co-Author (Elsevier Publishing)

● **"Rheology Modifier Handbook - Practical Use and Application".** The 500-page Handbook describes the flow behavior of materials ranging from solids to fluids. It also includes extensive information on 20 different types of rheology modifiers manufactured by 26 worldwide companies. These materials range from synthetic polymers such as poly (ethylene oxide) to natural gums and resins such as water-soluble polysaccharides.

BOOK SERIES 1; EDITOR: Harry's Cosmeticology, 9th Ed. Focus Book Series
Chemical Publishing Company, generating a series of Focus Books drawn from the 3 volumes, 2,600-page Harry's Cosmeticology textbook.

● **"Cosmetic Industry Approaches to Epigenetics and Molecular Biology",** Chemical Publishing Company(Sept. 2015)

● **"Achieving Global Cosmetic Market Access: Issues and Approaches";** Chemical Publishing Company (Sept. 2015)

● **"Sustainability and Eco-Responsibility**: Co-edited by Alban Muller and Meyer R. Rosen, Chemical Publishing Company (Nov. 2015)

● **"Art and Science of formulating Cosmetic Products",** Chemical Publishing Company, (Jan. 2016)

BOOK SERIES 2; EDITOR: **"Personal Care, Cosmetic & Pharmaceutical Technology"**

Elsevier Publishing (Amsterdam), generating a series of books dedicated to transforming the content and communication (via book and internet) of the status of technology in the Personal Care and Pharmaceutical Industry.

Books in Series include:

- "Global Regulatory Issues for the Cosmetic Industry, Volume 1", C.I. Betton, Editor (2007)
- "Global Regulatory Issues for the Cosmetic Industry, Volume 2", Karl Lintner, Editor (2009)
- "Nutritional Cosmetics", Aaron Tabor and Robert M. Blair, Editors, (2009)
- "Cosmetic Applications of Laser and Light-Based Systems", Gurpreet Ahluwalia, Editor, (2009)
- "Skin Aging Handbook, an Integrated Approach to Biochemistry and Product Development", Nava Dayan, Editor (2009)

BOOK CHAPTERS

"Regulatory Requirements, intellectual Property and Achieving Global Market Success for Cosmetic Products", Ruud Overbeek and Meyer R. Rosen (co-editors), Part 2.1, Harry's Cosmeticology, 9th Ed., (2015). www.harryscosmeticology.com

"Silicones in Personal Care Products: Polydimethyl Siloxanes, Organosilicone Polymers & Copolymers",Anthony J. O'Lenick, Jr. Thomas O'Lenick PhD and Meyer R. Rosen, (co-authors), Part **4.2.3.1,** Harry's Cosmeticology, 9th Ed., (2015). www.harryscosmeticology.com

"Cosmetic Manufacturing Processes",Donald S. Buell, Rose Khosravani, Doug J. Melenkevitz, Bruce L. Victor, David P. Yacko& Meyer R. Rosen, Part 13.1,Harry's Cosmeticology, 9th Ed., (2015). www.harryscosmeticology.com

TECHNICAL MAGAZINE EDITOR

Editor-in-Chief: EuroCosmetics Magazine (Germany)

TECHNICAL ARTICLES (OVERVIEW)

Mr. Rosen has published over 50 peer reviewed articles in the scientific literature and, as shown in Google Scholar citations, his work has been cited over 1,000. times by other researchers relying upon his work. This is especially true for his seminal work on

silane coupling agents now being relied upon for improvements of adhesion of teeth in the oral cavity.

Areas of interest include, but not limited to: fires, explosions, hazardous chemicals, cosmetic science, hair relaxers, hair coloring, polymers for Water Treatment, Specialty Chemicals for Textiles, Detergent Polymers, Surfactants used in the Detergent Industry, Specialty Chemicals for Textiles and a Review of the Non-Wovens Industry. He has also written articles on applied rheology, mathematical characterization of shear thinning and other types of rheological behavior, surface and interfacial chemistry, wetting and spreading phenomena, Organosilicone, delivery systems and flame retardants

Meyer has published numerous technical advertising literature pieces that have had worldwide circulation. This includes most of the Union Carbide Corporation's literature on POLYOX poly (ethylene oxide) Water Soluble Polymers and rheological literature for Brookfield Engineering Laboratories, a major manufacturer of rheological testing equipment.

EDUCATION

Year	College/University	Degree
1966	Polytechnic Institute of Brooklyn	MS, Chemical Engineering
1964	Polytechnic Institute of Brooklyn	BS, Chemical Engineering

CONTINUING PROFESSIONAL EDUCATION (Partial List)

In-Cosmetics, North America, New York City, Javits Center, Oct 17-18, 2018
Moderator: "Entering the Era of Vibrational Cosmetics: The Next Generation Approach to Mind-Body & Skin Regeneration"

Society of Cosmetic Chemists, 71st Annual Scientific Meeting & Technology Showcase, Dec. 11-12, 2017, the Westin New York at Times Square

Moderator: "The Age-Defying Paradigm: Newest Thinking, Concepts & Practical Approaches - Conferences - In-Cosmetics North America http://northamerica.in-cosmetics.com/en/Sessions/46328/The-age-defying-paradigm-newest-thinking-concepts-practical-approaches#.WYcvXOqJUl8.twitter; October 2017

In-Cosmetics, North America #2

October 11-12, 2017

In-Cosmetics ®, North America #1

Sept 7-8, 2016, New York City

HAPPI Anti-Aging Conference, Hyatt Regency, New Brunswick, N.J,

(Sept. 20-11, 2016)

HAPPI Anti-Aging Conference, Hyatt Regency, New Brunswick, N.J., (Sept. 16-17, 2015)

HAPPI Anti-Aging Conference, Hyatt Regency, New Brunswick, N.

J., (Sept. 16-17, 2014)

Antioxidant Symposium, Society of Cosmetic Chemists, June 5, 2014

20th Anniversary Technical Conference United Business Media (HBA Global Expo

And Conference, June 19-21, 2012.

New York Society of Cosmetic Chemists Rheology Symposium, March 27, 2012, Liberty Science Center, Jersey City, N.J.

Second Annual Technology Transfer Conference, New York Society of Cosmetic Chemists, Nov 9, 2011, West Orange, New Jersey

New York Society of Cosmetic Chemists Suppliers Day, May 10-11, 2011, Edison, New Jersey

"Cosmeceutical Symposium" and "Delivery Systems for Active Ingredients", 13th Annual Supply Side East Conference, May 2-4, 2011 (Secaucus, New Jersey).

"Cosmetic Technology Transfer Conference", New York Society of Cosmetic Chemists, October 20, 2010, Woodbridge, New Jersey

"Colloids and Surfaces, Nanoparticles, and Green Technology 2009", November 17-19, 2009, Javits Convention Center, New York City

"Global Perspectives on Environmental Risk", Allen &Overy, LLP (Continuing Legal Education Program), New York City, (October 20, 2006).

Skin Science for the Cosmetic Chemist (New York Society of Cosmetic Chemistry) (November 17-18, 2004).

Conference on Applied Hair Science, TRI, Princeton, New Jersey (June 2004)

AREAS OF TECHNOLOGY EXPERTISE

ORGANOSILICONES: SURFACTANTS/WETTING AGENTS, EMULSIONS, FOAMS, GELS, ANTIFOAMS, SILANE COUPLING AGENTS

Meyer has fifteen years research and development experience in the field of Organosilicone chemistry. He is knowledgeable in the theory and practical application of surface-active agents including organic, silicone and fluorocarbon types.Mr. Rosen is skilled in the art and science of characterizing and stabilizingboth silicone and non-silicone emulsions of both the oil-in-water and water-in oil types.

Mr. Rosen has developed methods for measuring and improving the stability of silicone emulsions and was involved in the optimization of emulsification processes for oil-in-water silicone emulsions and water-in oil poly (acrylamide) emulsions. He has authored papers on the prediction and detection of incipient agglomerate creaming in emulsions and has successfully used the fundamentals of non-Newtonian rheological behavior to predict silicone emulsion instability. One of Mr. Rosen's rheological techniques for characterizing shear thinning behavior has been adopted as an ASTM (American Society of Testing Materials) standard.

Meyer has been involved in the optimization, stabilization and development of amino-based silicone-based water-in-oil emulsions for car polish applications. He has developed silicone emulsions for aerosol spray starch applications. Meyer has consulted on the effect of Organosilicone surfactants as flame-retardants for polyurethane foam and conducted research on improving fuel combustion efficiency by altering atomization characteristics using Organosilicone copolymers. He was also involved in the development of a process to apply curing polyurethane foam onto porous backing materials.

Meyer has conducted applied research in many novel applications of both Organosilicone and organic surface-active agents. For five years, he was responsible for generating new product ideas and guided several Ph.D. synthesis chemists in the design of new Organosilicone surfactants and polymers. His guidance was based in part, on correlations he developed between structure and performance. During this period Mr. RosendevelopedOrganosilicone surface-active agents that improved droplet atomization and combustion efficiency of diesel fuel and # 6 oil.

Meyer has done extensive research and development in the area of both industrial and food grade antifoams. This work has included the development of new silicone antifoam products as well as simple test methods for their detection and efficacy. When faced with a new and unstable silicone antifoam product, Meyer invented the concept of “transient” antifoam, which takes advantage of the inherent antifoam instability to accelerate high-speed packaging of foaming fluids. He holds patents on "Non-Aqueous antifoam compositions", "Transient antifoams" and "Self-dispersible antifoam compositions. Mr. Rosen is fully familiar with the process technology for antifoam manufacture and the major silicone antifoam producers. He has published on the area of antifoams in the J. Soc. of Cosmetic Chemistry

Meyer has studied and developed AFFF aqueous foams based on novel Organosilicone copolymers. These have been widely used for extinguishing hydrocarbon fires associated with civilian and military aircraft fires. This technology requires knowledge of fundamentals associated with the spreading of one fluid upon another. He holds two patents on fire extinguishing foams: “Method of extinguishing fires and composition containing cationic silicone surfactants" and "Method of extinguishing liquid hydrocarbon fires and compositions therefore comprising silicone surfactants".

Mr. Rosen has been an Adjunct Professor at Westchester Community College and trained senior firefighters of New York City and surrounding cities in the chemistry and physics of fire science. He has developed methods of measuring and improving the stability of aqueous foams. Meyer is a member of the National Fire Protection Association and a former member of the standards-making Fire Fighting Foam Subcommittee. He is also a voting member of the ASTM Committee on Fire Extinguishing Agents.

Meyer has published a major review of Silane Coupling Agent Technology: "From Treating Solution to Filler Surface and Beyond - The Life History of a Silane Coupling Agent and has extensively studied methods of altering the surface and water repellency of materials such as clays and silica’s of all types. This seminal article has been cited numerous times in current approaches to improve adhesion of teeth in the oral cavit. He has also authored an article on silicones for hair conditioning in DCI Magazine.

WATER SOLUBLE POLYMERS, GUMS AND RESINS;
POLY (ETHYLENE OXIDE); POLYETHYLENE GLYCOL; POLYACRYLAMIDE

As Development Engineer for Union Carbide Corporation, with responsibility for World Wide Technical Support of POLYOX® Water Soluble Resins, Meyer provided, for five years, technical support and problem solving for hundreds of major domestic and international corporations for systems using POLYOX poly (ethylene oxide) and CARBOWAX polyethylene glycol and received several awards from the company. He has developed major new consumer applications for poly (ethylene oxide) including improved lubricity of the Gillette Razor Shaving Strip and aqueous-based lubricants for the clay-steel interface. Mr. Rosen was the developer of pelletizing technology for powdered poly (ethylene oxide) that enabled its initial use in thermoplastic extrusion and blown film processes.

Mr. Rosen has consulted on the use of hydrogels for improving the lubricity of surgical gloves. He also conducted novel work with Procter and Gamble in Belgium for the introduction of a detergent product with significantly improved anti-redeposition properties.

Meyer was also a consultant on "Rapid Water", a novel high molecular weight polymer product useful for decreasing the drag reduction of water in firefighting hoses. He has consulted on the development and application of novel hydrogel systems used for growing plants, "second skin" and water-soluble packaging for insecticides and detergents.

Meyer has also developed novel blends of thermoplastic water soluble and water-insoluble high molecular weight polymers. This work resulted in novel packaging films with hydrophilic properties. Such films have been used for packaging of detergents and toxic agricultural products.

Meyer holds the patents: "Process for forming ceramic bodies employing aqueous lubricants", "Shaped articles for conditioning hair fabricated from quaternary nitrogen-containing cellulose ether" and "Shaped article for conditioning hair- a blend of water-soluble and water insoluble polymers with inter-penetrating networks." These patents are each concerned with the effects of high molecular weight polymers, both water-soluble and water insoluble, and their behavior at interfaces. He has worked closely with synthesis chemists in the development of water-in-oil (i.e.: inverse) emulsions containing high molecular weight poly (acrylamide) anionic and amphoteric copolymers and terpolymers. Mr. Rosen holds a number of patents in this area, as well.

Meyer has reviewed and summarized over twenty- five years of the technical literature on poly (ethylene oxide). His work resulted in a major revamping and reissue of all of the Worldwide Technical Advertising Literature on POLYOX® Water Soluble Polymers. This included handling, applications, safety and toxicologicalaspects. His publications on the science and usefulness of POLYOX® Resins include: "Thermoplastic Processing", "Association Compounds", "Applications", "Dissolving Techniques", "Storage and Handling", "Environmental Impact", "Dust Properties", "The Basics" and "Toxicological Properties".

Mr. Rosen is fully familiar with the solution properties of water- soluble polymers and gums and the effect of concentration on the properties of such solutions. His knowledge of molecular domains formed in concentrated solutions of such polymers has been of use in addressing processing issues related to concentrating such solutions to powder form by means of spray drying systems.

Meyer has directed laboratory and field development programs. These included new high molecular weight poly (acrylamide) and poly (ethylene oxide) flocculants for industrial clay dispersions, taconite (iron) ore binders and phosphatic slimes (montmorillonite/attapulgite clay) consolidation and strengthening of highly concentrated systems. In the latter area, Mr. Rosen provided consultation to the United States Bureau of Mines. His work in the environmental aspects of mining area was the basis for his appointment as a Fellow of the Royal Society of Chemistry (London).

Mr. Rosen has also been a member of the American Institute of Mining Engineers and a former Symposium Chairman of the Flocculant/Surfactant Session. He has patented a "Process for producing a polymer-in oil emulsion". Meyer also published "An Improved Method for Consolidation of Phosphatic Slimes" which appeared as a major chapter in the Engineering Foundation's book, "Flocculation and Dewatering".

COLLOID AND SURFACE CHEMISTRY:

STABILITY OF DISPERSIONS, WETTING & SPREADING PHENOMENA, SUSPENSIONS & EMULSIONS, CLAYS, PAINT & COATINGS, PERSONAL CARE, COSMETICS

Meyer has spent many years studying the fundamental properties of finely divided materials and their behavior in liquid mediums. He is an expert at making such materials stable and using rheological techniques to measure key properties which produce this result. Mr. Rosen has developed stable, non- aqueous liquid color toners based on fluorocarbon liquids for three-dimensional Xerox process under a grant from the Naval Weapons Test Laboratory. He has been involved with the optimization of the stability of water-in-oil Polyacrylamide flocculant emulsions and development of stable, rapidly dissolving slurries of poly (ethylene oxide) based on thickened mineral oil.

FLOCCULATING AGENTS

Meyer has published an article entitled, "An improved method for consolidation of Phosphatic Slimes" and authored a major chapter in the Engineering Foundation's book,

"Flocculation and Dewatering". He has published an article on the creaming/separation phenomenon in silicone emulsions. He also holds several patents in the area of polymer water-in-oil emulsions as well as: "Slurries of Poly (ethylene oxide), "Rapidly dissolved water- soluble polymer composition" and "Process for forming ceramic bodies employing aqueous lubricants".

Mr. Rosen invented a new use and process for binding mineral ores using liquid poly (acrylamide) polymers. His publications in this area include “Carbinder Polymer 498: A New Organic Binder for Taconite Ore". He managed a staff of four in a two-year lab/field product development program and successfully optimized complex multivariable performance properties while developing a novel pelletizing process for Taconite (iron) Ore. This process was commercially adapted on a large industrial scale by Erie Mining Company, the second largest mining company in the U.S.

He also managed a five-year lab/field development program for the use and application of new poly (acrylamide) and poly (ethylene oxide) high molecular weight polymers for the flocculation and clean- up of Phosphatic Waste Slimes in Florida. The project was successful in converting highly fluid clay dispersions to solid form.

Mr. Rosen has been a member of the American Ceramic Society and the American Institute of Mining Engineers. Meyer has consulted for major ceramic companies involved in the preparation of highly concentrated systems. His successful work on Taconite Ore binding and enhancement of green strength was featured as the lead story in the "Pride" issue of Union Carbide World Magazine- "The Carbinder 498 Success Story- Two Man Team Defies Three-Dog Nights”.

Meyer has written an article on Water Treatment Polymers for Chemical Market Reporter. He holds several patents in this area including: "Process for agglomerating ore concentrate utilizing clay and dispersions of polymer binders or dry powder binders; "Process for Agglomerating ore concentrate utilizing clay and dispersions of polymer binders or dry powder binders"; "High molecular weight water soluble polymer and flocculating method using same"; "High Molecular weight water soluble polymers"; "Polymer water-in-oil emulsions” and “Process for forming ceramic bodies employing aqueous lubricants.”

APPLIED RHEOLOGY & DESIGNED PRODUCT FLOW BEHAVIOR

Meyer is an internationally known rheologist. He is the developer of the Shear Thinning Index (STI) Standard Test Method cited in ASTM D-2196, “Standard Test Method for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield) Viscometer. Meyer’s experience includes methods for the optimization of the rheological properties of non-Newtonian, agglomerated dispersions in order to maximize their stability by converting them to solid-like behavior. He is the author of an in-depth review of the mathematical models of non-Newtonian fluids and their practical use in the optimization of both aqueous and non-aqueous dispersion stability. Meyer developed rheological testing protocols to characterize and optimize wetting, spreading and penetration phenomena. These phenomena were associated with knife

coating silicone surfactant stabilized polyurethane foamed coatings onto textile substrates used for carpet backing and other substrates.

Mr. Rosen has completed a review of patented technology in the area of gelling agents for silicone- based antiperspirant sticks and gels and reviewed emerging technology in the area of surfactants used in skin and hair- contact personal care and home care formulations.He is named as an inventor on a US and European patent entitled, “Fumed Silica Embolic Compositions” which is related to the development of designed rheological fluids useful in brain neurosurgery for embolizing vascular sites and treatment of aneurysms, arteriovenous malformations and other vascular diseases.

Meyer has over thirty year’s background in the practical application of rheological principles for solving industrial problems. He has published papers in peer reviewed journals including” A Rheogram Template for Power Law Fluids: Technique for Characterizing the Rheological Properties of Emulsions and Polymer Solutions,” and "Approximate Rheological Characterization of Casson Fluids: Template Method for Brookfield Synchro-Lectric Viscometers". His rheological work is extensively quoted in the Encyclopedia of Polymer Science and Engineering. Meyer has been a consultant for Brookfield Engineering Laboratories and is a key contributor to Brookfield’s worldwide technical literature entitled, "More Solutions to Sticky Problems". he has provided training seminars in practical applications of rheology.

Meyer has directed a water-soluble polymer applications laboratory for more than 15 years and developed many novel products and applications by his practical use of rheological principles for solution of real-world problems. He has also researched, assembled, classified and authored an in-depth review of over one hundred articles on mathematical models of liquid flow behavior in an extensive article entitled: “Characterization of Non-Newtonian Flow”.

Mr. Rosen is a member of the ASTM Committee on Paint and Related Coatings. He has published a novel paper entitled, "Hair conditioning by a Chemical Comb” in which the flow behavior of water-soluble polymers plays a key role in their hair conditioning action. He has also published an article entitled, "Estimation of Molecular Weight Error for Concentration Uncertainness in the Intrinsic Viscosity Determination" and copyrighted the "Viscosity Calculator Slide Rule” for the Brookfield Synchro-Lectric Viscometer.

Meyer has presented invited seminars on rheology at: the 17th Mid-Atlantic Regional American Chemical Society Meeting: "An Introduction to Rheological Characterization of Non-Newtonian Fluids and Some Practical Applications; the National Meeting of the Society for Cosmetic Chemists: "Principles of Applied Rheology"; and the Applied Rheology for Industrial Chemists Symposium- Kent State University: "Characterization of Non-Newtonian Fluids- an Industrial Viewpoint.

RHEOLOGICAL MODIFICATION OF NON-AQUEOUS MEDIA

Mr. Rosen has been involved in the development of a range of products which require altering flow behavior of non-aqueous fluids including, but not limited to: mineral oils, silicone oils, anti-perspirant compositions, foamed engine degreasers, esters and fragrances. Product experience includes neat fluids as well as water-in-oil emulsions where the oil phase requires thickening.

LUBRICANTS

Meyer has had experience in the development of a wide range of novel lubricant applications. These include, for example, development of the lubricating strip used in Gillette razors, and is co-inventor of two U.S. patents on nanofoams containing poly(ethylene oxide) as a flexible lubricant delivery system for shaving (U.S. 2008/0216321 A1- Sept. 11, 2008; US2008003018). He has also developed aqueous based lubricants for use at the clay/steel interface during the manufacture of bricks, molybdenum disulfide lubricants in water-soluble poly (ethylene oxide) films and drag reduction in aqueous media. Mr. Rosen is familiar with the application of high molecular weight polymers for the enhancement of aqueous- based cutting fluids.

PRODUCTS LIABILITY, CHEMICAL TECHNOLOGY, PATENT LITIGATION

Mr. Rosen is a Forensic expert witness in a variety of litigation matters. These include, but are not limited to: Accident Reconstruction, Fires & Explosions, Hazardous Chemicals, Household and Industrial Products, Safety in Design & Formulation and Safer Alternatives & Safety in Packaging and Handling. Other legal matters he has been involved in include: Chemical Burns & Toxic Exposures; Technical Aspects of Warnings, Instructions and Labels; Personal Care & Cosmetic Products; Hair Relaxers and Hair Lightening. Still other matters include:slips & falls, Chemistry, Chemical Engineering, Physical Chemistry & Material Properties, Product & Process Issues, OSHA Regulations, ASTM standards, Codes & Standardsand Intellectual Property Management, including patent analysis/infringement as well as trade secret litigation.

MEDICAL TECHNOLOGY

Mr. Rosen was involved in the development of poly (ethylene oxide) technology for use in the first controlled release drug system developed by Pfizer. He has been a consultant to top molecular genetic researchers in the lung cancer field. Meyer has provided guidance on the development of optimal techniques for the preservation of morphology, protein and nucleic acid

(RNA and DNA) markers in exfoliated sputum cells. He has also been an active participant in six annual International Conferences on Screening for Lung Cancer.

Mr. Rosen has consulted for Medical Device companies engaged in development of novel surgical techniques. Mr. Rosen is an inventor on a U.S and European patent entitled "Fumed Silica Embolic Compositions". This invention relates to the development of novel treatment of aneurysms in the brain during neurosurgery (2005). Mr Rosen is also experienced in Medical Chemistry litigation issues.

TECHNICAL ARTICLES (Peer Reviewed)

"Regulatory Requirements, Intellectual Property and Achieving Global Market Success for Cosmetic Products", Ruud Overbeek and Meyer R. Rosen, Harry's Cosmeticology, 9th Ed. Chemical Publishing, Inc. pg. 70- pg. 159, (July 2015). www.harryscosmeticology.com

"Silicones in Personal Care Products: Polydimethyl Siloxanes, Organosilicone Polymers & Copolymers". Anthony J. O'Lenick, Jr., Thomas O'Lenick, Meyer R. Rosen, Harry's Cosmeticology, 9th Ed. pg 810-pg.866, Chemical Publishing, Inc. (July 2015). www.harryscosmeticology.com

"Cosmetic Manufacturing Processes", Bruce Victor, Meyer R. Rosen, et. al. Part 13.1,

Harry's Cosmeticology, 9th Ed., pg. 2,081- pg. 2,186, Chemical Publishing, Inc. (July 2015). www.harryscosmeticology.com

"Improving Cosmetic Formulation Quality Through Innovative Processing Technology: Preparation of MicroDroplet/Particle Master Batches through Innovative Compounding Techniques", Richard Holl, P.E., Dipl.-Ing and Meyer R. Rosen, EuroCosmetics Magazine (July/August 2012)

"Intelligent Delivery Systems for Enhancing the Performance of Active Ingredients in Skin Care Formulations", Meyer R. Rosen and Ameann DeJohn, EuroCosmetics Magazine (July 2011)

"Your HBA Educational Roadmap to Technical and Product Development Success", Show News, HBA Global Technical Conference (June 2011)

"New Ingredients for Styling & Color Retention: Addressing the Special Needs of Different Hair Types", Global Cosmetic Industry, (June 2004)

“Mane Protection” (Hair Care), GCI Magazine, pg 52 (February 2004).

“Skin Care that Really Works”, Skin, Inc., pg. 48 (Dec. 2003)

“Super (Naturals) & Botanicals”, Part 2, Global Cosmetic Industry, pg. 37 (Nov. 2003)

“Super (Naturals) & Botanicals”, Part 1, Global Cosmetic Industry, pg. 53 (Sept. 2003)

“Skin Care that Really Works”, Global Cosmetic Industry, pg. 42 (May 2003).

“Cosmetic Counterculture”, Global Cosmetic Industry, pg. 46 (Feb. 2003).

“Special Delivery, Part III, Global Cosmetic Industry, pg. 54 (Sept. 2002).

“Global Beauty Roundtable”, Soap & Cosmetics, (Sept. 2002).

"Flame Retardants", Specialty Chemicals Magazine, England(Nov. 2001).

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Patents

PRODUCT, PROCESS AND APPLICATION PATENTS

Year	Description	Patent Number
2010	Shaving Aid Delivery System for Use With Wet Shave Razors	US2008003018
2008	Shaving Aid Delivery System for Use With Wet Shave Razors	US 2008/0216321 A1 (Sept. 11, 2008)
2005	Fumed Silica Embolic Compositions	20050025707
1997	Design of Reflex-Correspondence Tool	U.S. D 382, 342
1997	Design of Alternative Reflex-Correspondence Tool.	U.S. D 379, 227

1993	Removal of Residual Ethylene oxide from Poly (ethylene oxide)	U.S. 5,216,122
1992	Slurries of Poly (ethylene oxide)	Patent pending
1989	Process for agglomerating ore concentrate utilizing clay and dispersions of polymer binders or dry powder binders.	U.S. 4,802,914
1988	Process for agglomerating ore concentrate utilizing clay and dispersions of polymer binders or dry powder binders.	U.S. 4,767,449
1986	Process for producing a polymer water-in-oil emulsion	U.S. 4,618,647
1986	High molecular weight water- soluble polymer and flocculating method.	U.S. 4,599,390
1985	Process for flocculation of phosphatic slimes	U.S. 4,555,346
1985	High molecular weight water soluble polymers	U.S. 4,529,782
1984	Polymer water-in-oil emulsions	U.S 4,452,940
1982	Rapidly dissolved water- soluble polymer composition	U.S. 4,325,861
1979	Process for forming ceramic bodies employing aqueous lubricants	U.S. 4,171,337
1978	Non-aqueous antifoam compositions	U.S. 4,101,442
1978	Transient antifoam composition	U.S. 4,101,443
1978	Self-dispersible antifoam compositions	U.S. 4,076,648
1977	Shaped article for conditioning hair. A blend of water soluble & insoluble polymers with inter-penetrating networks.	U.S. 4,018,729
1976	Shaped article for conditioning hair fabricated quaternary nitrogen-containing cellulose ether.	U.S. 3,992,336
1972	Method extinguishing fires & compositions, comprising cationic silicone surfactants.	U.S. 3,677,347
1971	Method extinguishing liquid hydrocarbon fires & compositions therefore comprising silicone surfactants.	U.S. 3,621,917

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