

Bryan Hauger Consulting  
5485 Conestoga Court, Suite 200  
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303-747-6533



## **Bryan Edward Hauger, Ph.D.**

Dr. Hauger has a long history of providing a specialist insight to plastic material manufacturers, converters, and the plastic pipe industry with a variety of focus areas including durability of plastic materials, compounded materials, extrusion support, joining of plastic piping and plastics testing. Bryan's background includes more than 25 years of professional experience including polyolefin catalyst research, additive stabilization of polymers, interaction of chemicals with plastics, extrusion production of plastic pipe, plastic pipe material technical service and plastic pipe system component testing. As a result of those efforts, Bryan holds several United States patents, has published several technical papers and have authored two different technical standards for ASTM International. End use applications in which Bryan is a plastics expert include corrugated plastic pipe, water distribution and plumbing systems, oil and gas production, plastic gas pipe, and conduit. Dr. Hauger is also available as an expert witness on widely varying subjects relating to plastic piping and participates in several industry organizations including API, SPE, PPI, CSA, AGA, AWWA and ASME. Bryan served for a decade as chair of ASTM F17.61 Subcommittee on Water Piping Systems.

### **PROFESSIONAL EXPERIENCE**

#### **August 2020 - Present**

##### **President; Extrusion Consulting, Inc., Longmont, Colorado**

Formed specialized consulting firm to serve the needs of plastic extrusion manufacturers including team members with diverse expertise covering most extrusion processes, polymeric materials and end markets. End markets of interest include film & sheet, pipe & tubing, compounding, profiles, wire & cable coating, and medical extrusion. We also represent OEM brands providing equipment for extrusion manufacturing.

#### **March 2014 - present**

##### **President; Bryan Hauger Consulting, Inc., Boulder, Colorado**

Formed consulting firm to serve the needs of plastic material manufacturers, converters and pipe system owners with a focus on plastic pipe materials, extrusion support for manufacturers, joining of plastic piping and plastics testing. Authored a book chapter, a standard for ASTM International and a 70 page report for EPRI. Presentations given at SPE ANTEC and Polyolefins Conference. Served 10 years as chair of ASTM F17.61 Subcommittee on Water Piping Systems. Received the Special Service Award from ASTM F17 Committee on Plastic Piping Systems in Nov. 2015 and in Nov. 2017.

#### **April 2012 - February 2014**

##### **Technical Director; Microbac Laboratories, Hauser Division, Boulder, Colorado.**

Direct and coordinate activities of a technical team to prepare test reports on plastic materials and piping system components, products, and assemblies. Provide consulting services on a broad array of technical projects including plastic materials and codes/standards revisions.

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**December 2011 – April 2012**

**Pipe Technical Service Supervisor; Chevron Phillips, Bartlesville, Oklahoma.**

Led a team of technical service engineers to provide experience and expertise on wide variety of technical issues confronting pressure pipe and non-pressure pipe convertors.

**2001 – December 2011**

**Pipe Material and Development Specialist; Chevron Phillips, Bartlesville, Oklahoma.**

Analyzed manufacturing technologies to create innovative products in a variety of end-use applications. Worked in a cross-functional team of developmental specialists having responsibility for development of new durable applications including thermoforming, large-part blow molding, sheet, geomembrane, corrugated pipe, pressure pipe and black, blue, and yellow concentrates. Developed new pipe resins. Provided technical service for PE pipe fabrication. Company representation at industry organizations including ASME, CSA, and ASTM.

**2000 – 2001 Polymer Stabilization Chemist; Chevron Phillips, Bartlesville, Oklahoma:**

Served as internal expert for resin development, manufacturing, technical service, purchasing and licensing. Developed analytical methods and qualified additives for polyethylene manufacturing. Provided technical and financial analysis of new additives.

**1996 - 2000 Polymer Research Chemist; Phillips Petroleum, Bartlesville, Oklahoma.**

Supported polyethylene manufacturing and licensing business from R&D group during new catalyst and product introductions. Scaled-up lab versions of polyethylene catalysts.

**EDUCATION:**

**Scripps Research Institute** - La Jolla, California. Postdoctoral Fellow 1995 - 1996

**Indiana University** - Bloomington, Indiana. Ph. D. in Inorganic Chemistry, 1995.

**Hope College** - Holland, Michigan. B. S. in Chemistry, 1990.

**SELECTED PAST AND PRESENT AFFILIATIONS:**

American Gas Association – Plastic Materials Committee Ex-officio Member

American Petroleum Institute

ASME – Contributing Member of the Working Group on HDPE Materials

ASTM International – Committee on Standards Member 2017 - 2019

American Water Works Association

Plastics Pipe Institute

Society of Plastics Engineers – Technical Program Chair, Plastic Pipe and Fittings SIG

**ASTM Standards Leadership:**

ASTM F3034-13, “Standard Specification for Billets made by Winding Molten Extruded Stress-Rated High Density Polyethylene (HDPE)”.

ASTM E3063-16, “Test Method for Antimony Content Using Neutron Activation Analysis (NAA)”.



Author of ASTM F3203 Precision and Bias, "Standard Test Method for Determination of Gel Content of Crosslinked Polyethylene (PEX) Pipes and Tubing".  
ASTM F2634 Precision and Bias, "Standard Test Method for Laboratory Testing of Polyethylene (PE) Butt Fusion Joints using Tensile-Impact Method"

#### Partial List of Presentations:

- Hauger, B. E.; 2022 SPE International Polyolefins Conference; Galveston, TX; February 2022. *Cyclic Cracked Round Bar Testing For Failure Analysis*.
- Hauger, B. E.; PE Pipe Alliance – Leader’s Panel; Tulsa, OK; December 2020. *Interviewed by Peter Dyke*.
- Hauger, B. E.; Energy Polymer Group; Houston, TX; August 2020. *Failure Analysis of Engineering Thermoplastics*.
- Hauger, B. E.; SPE - Plastic Pipe in Infrastructure and Industrial Applications; West Conshohocken, PA; April 2019. *Heat Fusion Joining Procedure Qualification for Natural Gas Utilities with PE Distribution Systems*.
- Hauger, B. E.; 2019 Southeast Recycling Conference; Orlando, Florida; February 2019. *Market Development Opportunities for Recycled Content in Plastic Pipe*.
- Hauger, B. E., Hensel, FW.; AMI Conference on Polymer Testing & Analysis; Pittsburgh, PA; Sep 2017. *Investigations of Sample Length on Plastic Pipe Quick Burst Pressure Test Results*
- Hauger, B. E.; 2017 SPE International Polyolefins Conference; Houston, TX; February 2017. *New Developments in Strain Hardening Modulus for Polyethylene Pressure Piping Applications*.
- Hauger, B. E.; SPE International Polyolefins Conference; Houston, TX; Feb. 2016. *Strain Hardening Modulus and Natural Draw Ratio for Polyethylene Pressure Piping Applications*.
- Hauger, B. E.; Plastic Materials Committee - American Gas Association Conference; Amelia Island, FL; September 30, 2015. *Spoolable Composite Pipe – Part II*.
- Hauger, B. E.; Accel Fusion - Headquarters; Odessa, TX. July 23, 2015. *State of the Art in Heat Fusion Joining of PE*.
- Hauger, B. E.; Plastic Materials Committee - American Gas Association Conference and Exposition; Grapevine, TX; May 18, 2015. *Spoolable Composite Pipe*.

#### Partial List of Publications:

- Handbook of Industrial Polyethylene and Technology, Chapter 42 "Pipe and Tubing Applications of Polyethylene". Mark A. Spalding & Ananda Chatterjee – Editors, John Wiley & Sons, October 2017. [Click for Link](#)
- Hauger, B.; Electric Power Research Institute (EPRI); September 2014. "Material Properties Affecting the Butt Fusion of HDPE Pipe". [Click for Link](#)

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## **Dr. Bryan Edward Hauger** **Legal Experience**

Year: 2015  
Type of Matter: Pre-lawsuit Investigation  
Case Name: Plaintiff v. Engineering Consulting Firm  
Services Provided: Extensive presence of polybutylene (PB) domestic water and fire suppression lines were not disclosed as part of property assessment report. Represented Plaintiff. Conducted a site visit to oversee the sampling of PB piping, directed testing to investigate the condition of the piping, and wrote a detailed assessment report on the condition of PB piping at the site and still in service.

Year: 2016  
Type of Matter: Expert Witness in Pre-Trial Discovery  
Case Name: Hardin County Board of Supervisors v. Ryken Engineering and S.L. Baumeier Company  
Disposition: Case Settled Prior to Trial  
Case Summary: Agricultural application of HDPE corrugated pipe in Iowa. The Board of Supervisors sued the manufacturer, contractor and engineer, alleging damages to the dual-wall HDPE corrugated drainage pipe ranging from 15" to 30". Served as expert consultant for the engineer, providing opinions and report on behalf of the engineer, rebutting opposing experts, and providing deposition testimony.

Year: 2016  
Type of Case: Breach-of-contract case concerning un-installed polyethylene gas pipe  
Case Name: Undisclosed  
Disposition: Case Settled Prior to Trial  
Summary of work: Pre-trial investigation, including reconstructing timeline to establish start and end dates for potential product issues

Year: 2016  
Type of Matter: Pre-Trial Investigation  
Case Name: Langtry Farms v. Nieber Golf representing Nupi Americas, Inc. as a disclosed expert witness.  
Disposition: Case Settled Prior to Trial  
Case Summary: Large-scale failures of an HDPE irrigation system on a golf course. The plaintiff filed suit against Nupi Americas as a manufacturer of HDPE fittings with the plaintiff claiming defective manufacturing workmanship.

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### **Legal Experience - Continued**

Year: 2017  
Type of Matter: Consulting Expert for The HDD Company  
Case Name: Arbitration Between The HDD Company, Inc. v SNC-Lavalin Constructors, Inc.  
Disposition: HDD prevailed at arbitration  
Case Summary: 4" Conduit Pipe Failure during Directional Drilling. Served as expert consultant providing opinions and a report on the cause of pipe failure.

Year: 2018  
Type of Matter: Consulting Expert for Defendant, Hilti, Inc.  
Case Name: Commerce Statler Development, LLC, et al. v. Fire & Life Safety America, Inc., et al. Cause No. DC 18-10800, pending in the 134th District Court, Dallas County, Texas  
Disposition: Case Settled  
Case Summary: Provided testing recommendations and interpretation of results on the exposure of CPVC pipe materials to various caulks while under strain.

Year: 2018  
Type of Matter: Pre-Arbitration Consulting  
Case Name: Parties Withheld by Agreement  
Case Summary: Assisted council by specifying testing and offering consulting on durability and irrigation performance of several plastic tubing products.

Year: 2018  
Type of Matter: Expert Witness  
Case Name: Withheld by Request  
Disposition: Case Pending  
Case Summary: Arranged multi-party observed testing and offering expert opinion on cause of 1" Aldyl natural gas service line and coupling rupture.

Year: 2018  
Type of Matter: Litigation consulting  
Case Name: Mazingo v. Mountaineer Gas Company  
Disposition: Case Resolved without trial  
Services Provided: Served as an expert witness concerning chemical analysis of materials in connection with a natural gas explosion in West Virginia.

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### **Legal Experience - Continued**

Year: 2018  
Type of Matter: Pre-Trial Investigation  
Case Name: ISCO adv. American Home Assurance Company, American Water Works Association, Bowen Engineering, and Western Oilfields Supply Co. d/b/a Rain for Rent.  
Disposition: Settled Prior to Trial and Expert Disclosures  
Services Provided: Extensive document review and consulting on HDPE pipe and fittings installation in a water pumping facility.

Year: 2018  
Type of Matter: Arbitration  
Case Name: ConocoPhillips Company V. Fiberspar LinePipe, LLC  
Disposition: Settled following Expert Disclosures and Deposition  
Services Provided: Extensive document review, written opinion provided and deposition on Composite LinePipe Failures due to Improper Installation & Operation

Year: 2019-present  
Type of Matter: Pre-trial investigation of product liability claims  
Case Name: D.R. Horton and Dupree Plumbing v. NIBCO, Inc. et al.  
Disposition: Case pending.  
Services Provided: Retained by a raw material supplier to review documents from various companies, witness testing of PEX tubing, and provide, if necessary, a rebuttal report regarding plastic plumbing failures.

Year: 2021  
Type of Matter: Pre-Trial Investigation  
Case Name: G.Jordan, C.Jordan, & K.Jordan, v Chevron Phillips Chemical Company.  
Disposition: Case Settled Prior to Trial  
Services Provided: Analysis of allegations of gas pipe cracking and leaking, including its cause and effect. Also general consultation involving polymer design and manufacturing processes.

Year: 2021  
Type of Matter: International Arbitration  
Case Name: Confidential.  
Disposition: Concluded  
Services Provided: Retained expert on behalf of claimant (largest South American iron company) to provide expert deposition at arbitration on the testing of samples of HDPE liner pipes and test results.

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### **Legal Experience - Continued**

Year: 2022  
Type of Matter: Consultative discussions with Hilti, Inc.  
Case Summary: Provided services regarding the identification of various caulk samples via FTIR and GC-MS.

Year: 2022  
Type of Matter: Pre-filing investigation  
Party Name: City of Pittsburg California  
Disposition: File Closed  
Services Provided: Document reviews including images of field installed HDPE piping

Year: 2022  
Type of Matter: Pretrial investigation  
Case Name: Manuel Valenzuela V. MRC Global, Inc et al  
Disposition: Case Resolved Without Trial  
Services Provided: Retained expert on behalf of MRC Global to provide document review and opinions on a personal injury investigation involving pneumatic testing of a HDPE piping system.

Year: 2022  
Type of Matter: Pretrial investigation  
Case Name: On behalf of SM Energy  
Disposition: Pending on Appeal  
Services Provided: Testing services proposed for investigation of composite pipe.

Year: 2023  
Type of Matter: Permanent Protection Order Hearing  
Case Name: Morgan McGarvey v. Kevin McGarvey  
Disposition: Case Closed  
Services Provided: Rebuttal report prepared disputing the opinions of the expert witness for Mr. McGarvey on the nature and cause of failure of a polyacetal fitting component in a toilet supply riser assembly.

Year: 2024  
Type of Matter: Fact Witness to Litigation  
Case Name: W. G. TomKo, Inc. v. Clearway Energy Inc., et al.  
Disposition: Deposition Provided  
Services Provided: Conducted an investigation into the failure of a large diameter fabricated HDPE fitting and provided deposition as a fact witness.

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### **Legal Experience - Continued**

Year: 2024  
Type of Matter: Rebuttal Expert  
Case Name: Ceme-Tube LLC v. Chroma Color Corporation  
Disposition: Case Dismissed  
Services Provided: Provided rebuttal expert witness report on the nature and cause of failure of large blow molded HDPE articles in exterior applications.

Year: 2024  
Type of Matter: Pre-trial investigation  
Case Name: Expert on behalf of utility services provider in New York litigation  
Disposition: Case Settled prior to trial  
Services Provided: Reviewed reports and provided observations and opinions on the failure of an articulated fitting during air pressure testing of a natural gas pipeline installation.