Maverick Applied Science

2026

9TH ANNUAL PLANT ENGINEERS FORUM FOR NONMETALLICS

MAY 20-21, 2026
HOUSTON, TEXAS

TECHNICAL PROGRAM & SCHEDULE

DAY 1: MAY 20, 2026

8:00AM-8:10AM

Greetings and Introductions, Jeff Eisenman

8:10AM-8:50AM

FRP 101: Fundamentals of FRP Materials and Construction Methods
We recognize that many of our attendees may be relatively new to the world of FRP and non-metallics, so we want to start the Forum by providing a basic-to-intermediate level introduction. This presentation will prepare our attendees with some of the terminology, materials, basics of FRP construction, and joining methods that they'll be encountering over the next two days to enhance their understanding and appreciation of more detailed topics to follow.
Darryl Mikulec, Maverick Applied Science

8:50AM-9:30AM

Increasing Reliability in Corrosive Environments Using FRP Composites
This presentation will help process engineers increase knowledge of FRP (fiber-reinforced polymer) equipment to deliver corrosion resistance, safety, and lifecycle value across high-demand sectors. Expect practical insights, case-based learning and a focus on Practical design and inspection considerations to extend asset life, case-validated approaches to lower CAPEX/OPEX and reduce downtime, and where Derakane™-based FRP outperforms metals and linings in real service.
Deepak Kolhe, ALTA Performance Materials

9:30AM-10:10AM

A Discussion on Material Selection of Nonmetallics for Process Piping
Nonmetallic materials, Fiber Reinforced Plastics (FRP), thermoplastics, and dual laminates, are materials of choice for many corrosive applications. Understanding the chemistry and operating conditions of a service are essential to its evaluation, but if the evaluation stops there, system performance may fall short of expectations. Additional considerations, such as trace elements in the feedstock, other chemical impurities carried through the process, thermal cycling, and decontamination processes may influence material choices. It's important to understand the complete process operation, so the engineer or plant SME can make reliable decisions to maximize material and system service life. In this presentation, we will discuss material options in an array of corrosive services and offer valuable insights and considerations for engineers involved in selecting piping materials for chemical processing.
Jeff Eisenman, Maverick Applied Science

TECHNICAL PROGRAM & SCHEDULE

DAY 1: MAY 20, 2026

10:10AM-10:40AM

MORNING BREAK

10:40AM-11:20AM

Best Practices for Nonmetallic Flange Assembly
Bolted flanged joint assemblies (BFJAs) are critical components in industrial piping systems, ensuring the safe containment of various chemicals under dynamic operating conditions. The reliability of the system depends on multiple interdependent factors, making its design, installation, and maintenance inherently complex. This presentation explores key challenges associated with non-metallic BFJAs, including gasket selection, flange material limitations, the impact of bolt preload, and the influence of temperature and pressure on overall reliability. Additionally, we will address common issues such as leaks, connection relaxation, and gasket degradation, along with best practices to mitigate these risks.
Jeff Wilson, VSP Technologies

11:20AM-12:00PM

Why Thermoplastics Fail
Non-metallic materials have become essential solutions for corrosive chemical environments where traditional metallic materials of construction suffer rapid degradation. Thermoplastics—including CPVC, PVC, PP, PVDF, and related engineered polymers—offer excellent corrosion resistance and cost advantages when properly selected and applied. However, premature failures still occur across many facilities due to improper material selection, installation practices, mechanical loading conditions, or a misunderstanding of the chemical and thermal environment.
This presentation examines the most common failure mechanisms associated with thermoplastic piping and equipment used in aggressive chemical service. Drawing on field experience and engineering analysis, the session will explore how chemical compatibility, temperature, stress, permeation, fabrication methods, and system design influence long-term performance.
Using real-world examples from chemical processing facilities, attendees will learn how to recognize early warning signs of thermoplastic degradation, investigate root causes of failure, and implement best practices for system design, material selection, and installation. The goal is to provide engineers, plant managers, and maintenance professionals with practical guidance to maximize reliability and lifecycle performance of thermoplastic systems in demanding chemical environments
Bryan Hutton, Maverick Applied Science

TECHNICAL PROGRAM & SCHEDULE

DAY 1: MAY 20, 2026

12:00PM-1:10PM

LUNCH

1:10PM-1:50PM

Thermal Plastic Pipe Butt Fusion
Perform demonstrations using Butt Fusion tool and a Handheld socket tool on the techniques and procedures for fusing thermal plastic pipe. Utilizing hands on explanation and PWPT slides to demonstrate and show case good and bad fusion techniques that effect the overall piping structure. How to recognize a bad fusion joint and what to do when these joints are discovered. By using proper technique and procedures a proper joint will secure the projects objective and achieve standardization of fusion technologies.
Mark Gore, Asahi/America

1:50PM-2:30PM

ASME NM.2 - Lessons Learned and Moving Forward
Any time a new standard is developed, for a variety of reasons it takes time for the industry to fully buy in. A challenge with implementing ASME NM.2 is that we went from an industry with limited design guidance and tribal knowledge to now having a very prescriptive standard to follow. We'll illustrate some examples of how this melding of old and new ways can affect end users, and we'll continue to educate Owners, Engineers, and End Users on how to properly use and implement ASME NM.2.
Darryl Mikulec, Maverick Applied Science

2:30PM-3:00PM

AFTERNOON BREAK

TECHNICAL PROGRAM & SCHEDULE

DAY 1: MAY 20, 2026

3:00PM-3:40PM

Rethinking Corrosion Resistance: Advanced Ceramics, Fluoropolymer Lined Steel and Dual Laminates

This presentation reviews the evolution and application of corrosion-resistant materials—from early metallics to modern engineered systems—emphasizing advanced ceramics, dual laminates, and fluoropolymer-lined steel for chemical process industries. Metallic alloys provide strength and temperature capability but are vulnerable to localized corrosion, whereas non-metallics offer broad chemical resistance and durability in extreme environments. Advanced ceramic linings on steel substrates deliver excellent chemical and thermal stability, while dual laminates combine FRP structures with thermoplastic liners for flexible, corrosion-proof containment. Thermoplastic-lined steel and dual laminates, such as PFA or ECTFE systems, supports aggressive acids like HF and HCl where metallic alloys are inadequate.

Michael Krauss, Knight Material Technologies

3:40PM-4:40PM

Panel Discussion & Closing Thoughts

Attendees will reflect on the discussions had in the breakout sessions, offering fresh perspectives and ideas to consider to fellow attendees. We will share comments and conclusions from breakout session for group interaction.

All Speakers

5:30PM-8:00PM

SOCIAL MIXER AT HOTEL RESTAURANT

TECHNICAL PROGRAM & SCHEDULE

DAY 2: MAY 21, 2026

8:00AM-8:40AM

A 2026 Case History of Detail FRP Vinyl-Ester Tank Lining
This presentation will cover every step of the case study from strategic innovated offering, economic value, engineering and design to install, prep, application, QA/QC processes and safety - and proven results over time, along with lessons learned and takeaways for future projects.
Miles Mohnkern, Thorpe PME

8:40AM-9:20AM

Pipe Stress Analysis and the Right Pipe Supports Are Essential for FRP Piping Systems
The majority of piping failures can be traced to design choices and pipe supports. FRP expands and contracts 2.5 to 3 times as much as carbon steel at normal process conditions. Managing this influence is critical to reliable performance. For this reason, pipe stress analysis of FRP process piping systems is generally recommended and considered best practice. We will discuss material properties and how they relate to system behavior. Proven strategies and design approaches for safe and reliable FRP piping system arrangement will be presented. We will discuss the benefits and challenges with each approach. Additionally, we will discuss FRP needs when it comes to piping supports and pipe support functionality.
Jeff Eisenman, P.E, Maverick Applied Science

9:20AM-10:00AM

Expansion Joints and Chemical Service
Expansion joints are vital in diverse piping systems to absorb thermal movement, isolate vibration and compensate for minor misalignments. When applying expansion joints to chemical service applications careful considerations are required to ensure long-term reliability and safety. Chemical process environments often involve aggressive media, elevated temperatures, pressure fluctuations, and demanding operating conditions that can significantly impact expansion joint performance and service life. This presentation will discuss the key engineering considerations when specifying expansion joints for chemical service applications. Topics will include chemical compatibility, temperature and pressure limitations, types of expansion joints and how they can impact the piping system.
James Gannatal, ProCo Products

TECHNICAL PROGRAM & SCHEDULE

DAY 2: MAY 21, 2026

10:00AM-10:30AM

MORNING BREAK

10:30AM-11:10AM

Optimizing Selection of Components in Nonmetallic Systems for Lowest Lifecycle Cost
Designing with nonmetallics can be challenging without the knowledge of how all the components in a total system work together. This session will focus on the selection process from tanks and vessels to tank internals, expansion joints, hoses, valves, piping, and pipe supports for specific temperature, pressure, and chemical exposure conditions. Engineers desiring to understand how to design the entire system in nonmetallics will gain understanding for when specific materials and equipment types can be used and what the advantages and disadvantages are for each. Ultimately, this content will inform the decision-making process based on good engineering practice and standards compliance. The result will be lower lifecycle costs and longer uptime for the plant owner based on compatibility and durability imparted by engineers with a broader understanding of nonmetallic total systems.
Prateek Mule, Andronaco Industries

11:10AM-11:50PM

Practical and Analytical Methods for Preventing Nozzle Failures
One area of an FRP system that continues to create challenges for a plant site is the nozzle connection between the tank and the piping, but it doesn't have to be that way.We'll discuss what it is about FRP nozzles that makes them susceptible to leaks and failures from both a design and manufacturing point of view. We'll then provide analytical and practical solutions to increase performance and provide long-term reliability.
Darryl Mikulec, Maverick Applied Science

TECHNICAL PROGRAM & SCHEDULE

DAY 2: MAY 21, 2026

11:50AM-12:30PM

Design and Fabrication Challenges of FRP Lateral Joints
This presentation addresses the design and fabrication challenges of FRP lateral joints in industrial piping exposed to pressure, external loads, and aggressive service, an area not explicitly covered by ASME NM.2 and therefore reliant on engineering judgment. It explains why lateral joints are more vulnerable than straight pipe or molded fittings, highlighting the performance gap caused by fabrication methods and geometric discontinuities. The presentation concludes with findings from a high-pressure test program, summarizing failure modes and lessons learned that inform improved design assumptions and fabrication practices.
Thomas Smart, RPS Composites

12:30PM-1:40PM

LUNCH

1:40PM-2:20PM

FRP Equipment Condition Assessment and Maintenance for Longevity and Reliable Performance
FRP and dual laminates are ideal for many corrosion processes, from power utilities, chemical processing, pulp & paper to mineral processing. Plant safety and equipment reliability are vital to plant operations. Unplanned outages and loss production are not tolerated. This makes condition assessment of equipment and piping critical to plant operation. Services where nonmetallic are necessary and preferred are frequently some of the most corrosive in the plant. A regular inspection and maintenance assessment program is essential for plant operations to make decisions regarding maintenance and reliability of these services. We will discuss typical points of concern, findings, and observations. We will offer discussion on related impacts of wear and deterioration along with corrective measures.
Jeff Eisenman, P.E., Maverick Applied Science

TECHNICAL PROGRAM & SCHEDULE

DAY 2: MAY 21 , 2026

2:20PM-3:00PM

Repair and Alteration of FRP and Dual Laminate Equipment
Repair and alteration of FRP and Dual Laminate Equipment is not directly addressed by global standards. Much of the details are developed for specific equipment by experienced personnel. This presentation will include an overview of the work MTI has developed through the years to assist end users/owners in evaluating repairs and alterations proposed by fabricators and third-party engineering companies. The guides developed by MTI reflect the learnings of members responsible for FRP and Dual Laminate equipment. The content is intended to assist those responsible for this type of equipment so they can maintain equipment reliably.
Dale Keeler, Materials Technology Institute

3:00PM-4:00PM

Panel Discussion
We will have an open panel discussion. The panel of presenters will further discuss questions related to best inspection practices, approaches to reliability, root-cause failure analysis and performance considerations for a successful system.
All Speakers

END OF FORUM, 4:00PM

MEET THE SPEAKERS

Jeff Eisenman, P.E.

Maverick Applied Science, Inc.

Jeff founded and has been leading Maverick Applied Science, Inc. since 1999. Jeff is an international expert in nonmetallic equipment for corrosive applications in heavy industry. He has been specifying, designing, and inspecting FRP and dual laminate equipment and piping systems for over 30 years. His engineering and field capabilities for FRP and metallic materials include pipe stress analysis, finite element analysis, structural design, and material specification.

Deepak Kolhe

ALTA Performance Materials

Deepak Kolhe is a Canadian Account Manager and Market Development Specialist at ALTA Performance Materials. With deep expertise in market research and process management along with degrees in chemical engineering and business administration, Deepak brings experience from previous roles at INEOS, Chembond Chemicals Limited and ATMOS360.

James Gannatal

ProCo Products

James M. Gannatal is a Mechanical Engineer with Proco Products, Inc., an elastomeric expansion joint and check valve manufacturer. He has worked with Proco Products, Inc. for over 14 years in both their elastomeric expansion joints and check valve divisions. James has a Bachelor of Science in Mechanical Engineering from the University of the Pacific and is a Professional Engineer licensed in the state of California. James in the current technical chair for the expansion joints division of the Fluid Sealing Association.

MEET THE SPEAKERS

Dale Keeler, P.E.

Materials Technology Institute

Dale was the Global Nonmetal SME & FRP/Thermoplastics group leader for Dow Chemical for 16 years, until his retirement in July 2021. Since 2021, Dale has been an Associate Director with the Materials Technology Institute. Dale has authored and coauthored multiple MTI publications, championed multiple projects and is a trainer for FRP and Dual Laminate inspection courses. He is part of various committees, including ASME Committees – RTP-1, Section X, NPPS, and NBIC subcommittee FRP repair and alteration.

Michael Krauss

Knight Material Technologies

Michael has more than 29 years of fluoropolymer experience working for three fabricators, a resin supplier, a converter, and is currently Sales Director – Fluoropolymer and Dual Laminates for Knight Materials. He has a B.S. ChE. From The Pennsylvania State University and an M.B.A. from Villanova. He is currently the President of the Dual Laminate Fabrication Association, the Vice Chair for the Dual Laminate Subcommittee of ASME RTP1, and is the Marketing Chair at MTI.

Mark Gore

Asahi/America

Mark has been in the Industrial Valve and Pipe industry for 40 years. During that time he has worked with Fisher Controls for control valve and regulators in IL and GA as well as the Product Manager for T3 Industries, LA for Valves and Choke products in oil field applications. After 20 years as a District Sales Manager with Asahi/America, Inc. where Mark served LA, AR, MS, AL & TN, he became a Business Development Manager for the Heavy Industrial Markets: Power, Chemical, Pulp and Paper and Metal Finishing.

MEET THE SPEAKERS

Darryl Mikulec, P.E.

Maverick Applied Science, Inc.

Darryl joined Maverick Applied Science, Inc. in 2006 as a staff engineer. Since that time, Darryl has steadily honed his expertise and is nationally recognized as a leader in the field of FRP piping and equipment. Darryl currently leads the Engineering and Inspection Services Teams at Maverick Applied Science, Inc. Additionally, Darryl is responsible for all materials testing and pipe support projects within the company. Darryl is currently the Vice Chair for the ASME NM.2, Design Subgroup of the Subcommittee for FRP Piping.

Miles Mohnkern

Thorpe Specialty Services

Miles is a graduate of Sam Houston State University with a BS in Industrial Engineering Design and Development. Miles has been with Thorpe for over 20 years and has 46 years of experience in the corrosion and refractory side of the business. Miles has held many positions from the field to management with focus material technology. With his engineering and exposure to the field, Miles brings experience and knowledge of how and what materials will perform.

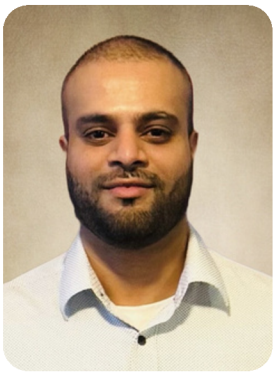
Bryan Hutton

Maverick Applied Science, Inc.

Bryan currently serves with Maverick Applied Science, where he works with chemical facilities and industrial organizations to evaluate materials of construction and improve reliability of corrosion-resistant systems. His career has focused on engineered thermoplastic and composite materials including CPVC, FRP, and dual laminate systems used throughout the chemical processing industry.

Bryan has worked extensively with advanced piping materials such as Corzan CVPC, helping engineers understand how proper design, installation, and material selection can dramatically extend the life of piping systems operating in aggressive chemical environments.

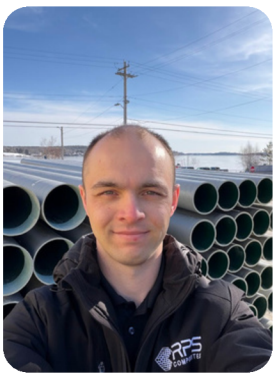
MEET THE SPEAKERS



Prateek Mule

Andronaco Industries

Prateek Mule has a master's degree in mechanical engineering with 10 years of experience in estimating and engineering FRP and dual laminate piping systems and storage tanks. Prateek specializes in technical evaluation of FRP equipment, with strong expertise in corrosion-resistant materials, fabrication methods, code compliance, and project cost analysis.



Thomas Smart

RPS Composites

Thomas Smart is a Mechanical Design Engineer specializing in the design and analysis of FRP and Dual Laminate piping systems. With a strong focus on developing customized piping solutions on a project-specific basis, he brings a practical, engineering-driven approach to improving reliability, manufacturability, and performance in corrosive-service piping. Thomas works closely with production, quality, sales, and customers to develop solutions that meet demanding industrial requirements while advancing best practices in FRP system design.

Jeff Wilson

VSP Technologies

Jeff Wilson joined VSP Technologies in 2016 and is currently the Engineering Leader. Jeff specializes in research and product development, the material science of gasket materials, and mechanical joint integrity. He has authored multiple peer-reviewed papers and presentations focusing on the various aspects of fluid sealing and holds one U.S. Patent.

FORUM GIVEAWAY

We are giving away two YETI coolers with all sorts of goodies inside! Collect a sticker from each sponsor table and show it to any of our Maverick team members to receive an extra entry into the drawing. Good luck!

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