

Bring on the Heat 2021

Technical Program

June 15-16, 2021 • Pasadena, TX

FROM	TO	Tuesday, June 15, 2021
7:00 AM	5:00 PM	Registration
8:00 AM	6:00 PM	Exhibit Hall Open
		Moderated by Mike McLampy, PPG
8:00 AM	8:40 AM	<p style="text-align: center;">Corrosion Mechanisms Under CUI and PFP Presented by Kat Coronado, International Paint and Carl Reed, Consultant</p> <p>CUI is an acronym which stands for Corrosion Under Insulation, with the operative word being Corrosion. Metallic corrosion is defined as the deterioration of a metal or alloy resulting from a reaction with the chemicals in its environment. Before corrosion can be successfully mitigated, an understanding of the components and the mechanisms which bring about corrosion must be understood. This presentation will present and provide an introduction to the effect of components such as water, oxygen, and ions have on the mechanisms and the kinetics of corrosion. From this understanding, various mitigating strategies will be presented to reduce or eliminate corrosion and its effects in an under insulation environment.</p>
8:40 AM	9:20 AM	<p style="text-align: center;">How Does Peak Density and Surface Cleanliness Affect Adhesion on High Temp Coatings? Presented by Pete Mitchell, GMA Garnet</p> <p>This study is to show the direct affect of peak density and surface cleanliness' affect on adhesion. The study was done with 2 liquid coatings and 2 TSA coatings. As peak density increases, so does the adhesion; additionally, the same could be said for the surface cleanliness too.</p>
9:20 AM	10:00 AM	Break
10:00 AM	10:40 AM	<p style="text-align: center;">Preventing the Do-Over: Understanding the Elements That Produce a Quality PFP Project Presented by David Hunter, Hempel</p> <p>Passive Fire Protection, whether cementitious or intumescent, requires the right product selection (for the environment or for constructability), over the right surface preparation under the right conditions in order to perform as designed. This article discusses how several miss judgments in product selection, contractor qualification, quality control and quality assurance, and erection lead to costly rework at a regional airport.</p>
10:40 AM	11:20 AM	<p style="text-align: center;">Multi-Sectional Assessment in Hydrocarbon Fire Applications Presented by Bill Dempster, International Paint</p> <p>The legacy approach to protecting structural steel with passive fire protection in petrochemical applications has been one size fits all. The belief was any steel section factor can be adequately protected using the tested thickness of a W10x49 steel section. When in fact single thickness assessment leads to an over protection/under protection scenario, contributing to un-necessary project delays and over runs.</p> <p>This presentation will review the technical and commercial implications of implementing proven multi-sectional assessment of passive fire protection materials. Multi-sectional assessment is nothing new and used exclusively in the commercial market and hydrocarbon fire applications outside North America. Examples from project data will demonstrate the positive influence multi-sectional assessment on project schedule and cost savings.</p>

11:20 AM	Noon	<p align="center">Performance Based PFP Design and Specification for Oil and Gas Facilities Presented by Onder Akinci, Simpson Gumpertz & Heger</p> <p>Design against accidental fire events is critical for safety and resilience of oil & gas facilities. The objective of this study is to present state of the art methods in fire protection design and PFP specification for structures, piping systems and equipment. Best practices are demonstrated through actual project case studies. Additionally, key characteristics and advantages of different PFP types are discussed. Performance based approach in fire protection design involves an iterative analysis procedure considering interaction of protected structures, equipment and piping systems, and analytical modeling of PFP.</p> <p>This refined analysis and optimization approach helps to ensure that specified PFP is fit for purpose and applied to critical elements instead of an overly conservative scheme. Optimization of PFP design and specification process has significant benefits for new projects and brownfield PFP repair applications. Improvements in analysis and design methods are expected to result in significant savings throughout the life of a facility.</p>
Noon	1:00 PM	Lunch
1:00 PM	1:40 PM	<p align="center">Supoxy: The Latest Innovation in Epoxy Technology Presented by Justin Manuel, Carboline</p> <p>A complete review of the physical characteristics of Supoxy will help enlighten attendees to the innovative properties and application techniques that have not yet existed by technology in this space before. By reviewing a current and successful case history on fire tubes, the effectiveness of the technology will be showcased.</p>
1:40 PM	2:20 PM	<p align="center">Inherent Challenges with Fireproofing Galvanized Steel Presented by Russell Norris, Sherwin Williams</p> <p>Galvanizing is effective for providing corrosion protection for steel and is used extensively within refineries and chemical plants. Galvanized steel is often located in high fire risk areas and therefore must be fireproofed. During the galvanizing process, there are factors that influence the zinc film formation and its physical properties. It is important to understand the challenges presented with fireproofing galvanized steel, recognize potential issues during all phases of the inspection process, and to be aware of the surface preparation procedures required. Otherwise, a premature failure may occur.</p>
2:20 PM	3:00 PM	Break
3:00 PM	3:40 PM	<p align="center">Strategies for Mitigating CUI with Stone Wool Presented by Abraham Sebastian, Rockwool</p> <p>It is important to choose an insulation with key characteristics that help prevent water from taking hold of the system. Stone (mineral) wool is one of the oldest forms of insulation and widely used. Over the years, there has not been many developments in reducing water absorption until recently, but there are significant variations of water repellency in the product category as different types of water repellency additives are used. This presentation discusses the different types of water repellent additives on the market today and compares the performance using industry standards. Also included in this presentation are a variety of CUI mitigation methods that can help tackle this ever-growing problem.</p>
3:40 PM	4:20 PM	<p align="center">Surface Preparation Risks for High Temperature Coatings Presented by Ken Rossy and Alex Petkas, HoldTight Solutions</p> <p>Coatings fail for many reasons. In this presentation, we discuss the risks inherent in the surface preparation process, which accounts for most premature coating failures. We present several leading current industry methods for testing for and removing soluble salts. There is debate about allowable salt levels in various service environments and for various coating types. But most surface salt contamination issues have proven solutions, which are cost effective in comparison to the risk of coating failure. We discuss the strengths and weaknesses for different methods of testing and removing salts, with special attention to how to prepare steel for insulative and heat resistant coatings.</p>

4:20 PM	5:00 PM	<p style="text-align: center;">Owner's Panel</p> <p>The Owner's Panel is your opportunity to ask leaders at some of the biggest oil and gas facilities in the US your burning questions about the use of coatings at their facilities. Its your chance to get some insight into what they are looking for, where they see the future of the industry going, and other important questions to help you and your company on the next project.</p> <ul style="list-style-type: none"> • Larry Curry, SME - Coatings/Linings/Insulation/Fireproofing Materials, Marathon Petroleum • Carlos Fernandes-Lopez, Non-Metallics Discipline Technology Lead (DTL), ExxonMobil • Luis Garfias, Materials Scientist, Dow • Andrew Hevle, Corrosion Control Manager, Kinder Morgan • Tim Bieri, Vice-President, Materials & Corrosion Engineering, BP <p>*speakers subject to change.</p>
5:00 PM	6:00 PM	Reception

FROM	TO	Wednesday, June 16, 2021
7:00 AM	5:00 PM	Registration
8:00 AM	5:00 PM	Exhibit Hall Open
		Moderated by Carol Reed, Consultant
8:00 AM	8:40 AM	<p style="text-align: center;">Inspection CUI & CUF With Repairs Presented by Arthur MacKinnon, Hempel Coatings</p> <p>CUI and CUF detection is very difficult and over time can be very costly to asset owners, starting in the 1970's API, NACE an others organizations saw a new damage mechanism for the industry working with inspection companies started developing standards and methods for CUI and CUF discovery as technology grow so did the tools. Challenges over the years many new tools and techniques have been development but what works best for detection we will review the most popular methods with pros and cons for each. The challenge is one tool does not work best for all inspection many choices:</p> <ul style="list-style-type: none"> • Visual Inspection • Neutron Backscatter • X-Ray or Radiography • Real Time Radiography • Computer Radiography • Digital Detector Array • Ultrasonic Thickness Measurement • Pulsed Eddy Current <p>With all the new tools for CUI and CUF detection the questions remain when finding corrosion how is it handled, how far back must you remove jacketing of PFP to make repairs what if the equipment is at t – minimum? Standards to be discussed and help answer these questions:</p> <ul style="list-style-type: none"> • API – 570 • Inspection, Repair, Alteration, and Rerating of In-Service Piping Systems • ASME – PCC • Repair of Pressure Equipment and Piping • NACE SP0-198 • Control of Corrosion Under Thermal Insulation and Fireproofing Materials – A System Approach • API 583 • Corrosion Under Insulation and Fireproofing

8:40 AM	9:20 AM	<p align="center">Corrosion Under Fireproofing - Detection and Assessment with Pulsed Eddy Current Array Presented by Lloyd Graham, Eddyfi</p> <p>Pulsed Eddy Current (PEC) is an electromagnetic screening technique that can detect corrosion under insulation or fireproofing and as such is uniquely suited to inspect sphere legs. The technique saw limited use in the past because older generation systems were limited in productivity and affected by the presence of reinforcement bars in the fireproofing layer. New development of PEC technology will be presented that significantly improved coverage, probability of detection and confidence for CUF inspections.</p> <p>The deployment of Pulsed Eddy Current Array increases productivity significantly. Dedicated algorithms are used to minimize reinforcement bars interference. These developments combined with effective deployment ensure near 100% coverage with higher inspection confidence than traditional methods and significantly lower cost than removing fireproofing.</p>
9:20 AM	10:00 AM	Break
10:00 AM	Noon	Demo Day
Noon	1:00 PM	Lunch
1:00 PM	1:40 PM	<p align="center">Piping Hot? A Hot Spread Epoxy Phenolic Coating for Hot Rusted Pipes and CUI Mitigation Presented by Vijay Datta, International Paint</p> <p>According to Aristotle: "Excellence is never an accident. It is always the result of high intention, sincere effort, and intelligent execution; it represents the wise choice of many alternatives-choice, not chance, determines your destiny". While protecting their assets in the oil and gas industry, facility owners are more than ever looking to reduce shutdown times, improve plant efficiencies and to extend their lifetimes. With this comes the increased industry understanding about CUI with its deleterious impact and the ongoing desire for pragmatic high performance and cost-effective coating solutions. Although most traditional coatings for CUI mitigation are touted for application at elevated temperature, few have been specially formulated to be applied successfully in this way.</p> <p>This presentation reviews the current protective coating technologies in the market that are used for direct application to hot surfaces for CUI mitigation. A novel hot spread epoxy phenolic coating exemplifies how excellence is never an accident given its deliberate formulation application for hot rusted steel assets. The coating's application to low grade surface pre-treatments derives from an understanding and interaction of iron (oxyhydr) oxide types on hot surfaces with a novel epoxy technology.</p> <p>The hot spread epoxy phenolic coating assures facility owners cost reductions in CUI mitigation and shutdown times and enhances productivity without sacrificing performance. This helps eliminate confusion for owners, engineers and specification authorities with coating selection, and provides valuable coating additions for the maintenance contractor's armoury. Applications are discussed where the hot spread epoxy phenolic coating has been applied successfully to hot rusted steel pipes and vessels in the oil and gas industry.</p>
1:40 PM	2:20 PM	<p align="center">What Can The NACE TG516 Test Method Really Tell Us About Insulation? Presented by Monica Chauviere, Super Insulation, LLC</p> <p>The NACE TG 516 test method for hot service exposures involves the cyclic immersion of test specimens consisting of steel pipe sections insulated with a given insulation system. Hot air or liquid is routed through the test specimens which are joined together and placed in a trough for complete immersion of the specimens, then draining for "dryout" phase of the cycle. Joint Industry Projects (JIP's) have since been initiated and completed to evaluate coatings and insulation products in each exposure cycle of water immersion and hot service dryout.</p> <p>This presentation addresses why the test specimen exposure of this test method may be suitable for objective evaluation of protective coatings for CUI service but is NOT necessarily suitable for insulation products in any manner except by direct comparison to other insulation products.</p>

2:20 PM	3:00 PM	Break
3:00 PM	3:40 PM	<p style="text-align: center;">Accelerated Stress Testing Epoxy CUI Coatings Presented by Dik Betzig, Thermal Coating Solutions</p> <p>To date there is not a universally acceptable or Standard Test Method for CUI coatings. Current test methods have significant short falls in reliability, complexity and can be awfully expensive. In some cases, testing takes more than 6 months to get results. Proposed test method is elegant, accelerated and unlike others offers a high degree repeatability for coatings under thermal stress. The Accelerated Cyclic Stress Test is capable of testing coatings for intermittent immersion under insulation from ambient to 700°F (350°C)</p> <p>Most CUI epoxy coatings on the market are modified phenolic in some fashion. Some are classified in general terms as "hybrid or modified epoxy" coatings with temperature limits of 400-450°F (200-225°C). A true hybrid can be based on a Co-polymer IPN binder system and further be called a composite based on thermal barrier pigmentation with extended thermal performance up to 700°F (350°C). The test protocol incorporates 4 critical tests for determining lifespan of Epoxy based CUI coatings. One test apparatus/chamber will combine the following principal tests using a simulated CUI environment.</p>
3:40 PM	4:20 PM	<p style="text-align: center;">Cryogenic Exposure of Industrial Cementitious Fireproofing Followed by an Immediate or Delayed Jet Fire Test Presented by Cabot Wilkinson, Carboline</p> <p>The ideal industrial fireproofing provides cryogenic, hydrocarbon, and jet fire protection. Current standards do not address the possibility of cryogenic exposure followed by jet fire. They usually focus on one type of protection partially due to the difficulty of transitioning between these exposures. To this end, a transition from ISO 20088-1 (Determination of the resistance to cryogenic spillage of insulation materials) to ISO 22899-1 (Determination of the resistance to jet fires of passive fire protection materials) in under 15 minutes was attempted and successfully carried out. Cryogenic exposure can occur days, weeks, or years before a fire occurs. To provide an idea of how this delay can affect fire resistance, additional testing was performed where the jet fire test was delayed by 11 weeks. The paper will highlight how the transition was achieved, as well as comparing the ISO 22889-1 results to those in which no cryogenic exposure occurred.</p>
4:20 PM	5:00 PM	<p style="text-align: center;">Utilizing Automated Radiography for Cost-Effective Large-Scale Corrosion Screening Presented by John Musgrave, MISTRAS Group</p> <p>Automated Radiography (ART) is a proven non-destructive testing method that provides a demonstrated ability to conduct large-scale corrosion screening at 25% of the cost of manual methods, while delivering highly accurate, DICONDE-compliant images. The presentation will discuss ART's downstream, midstream, and upstream applications, along with its ability to provide auditable, higher-quality, and retainable inspection results at significantly lower costs than traditional methods.</p>