INSTITUTE OF CORROSION

MARINE CORROSION FORUM

FOR ALL WET CORROSION ISSUES

Welcome to MCF – Marine Corrosion Forum / ICorr – Institute of Corrosion 2021 January Webinars.

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Institute of Corrosion and MCF partnering with:

- Dr. Jeffrey D. Rogozinski

18th January 2021

INSTITUTE OF CORROSION

“High Operating Temperature Fusion Bonded Epoxy Coatings for Onshore and Offshore applications”

Dr. Jeffrey D. Rogozinski, Global Product Director
The Sherwin-Williams Company,
18th January 2021

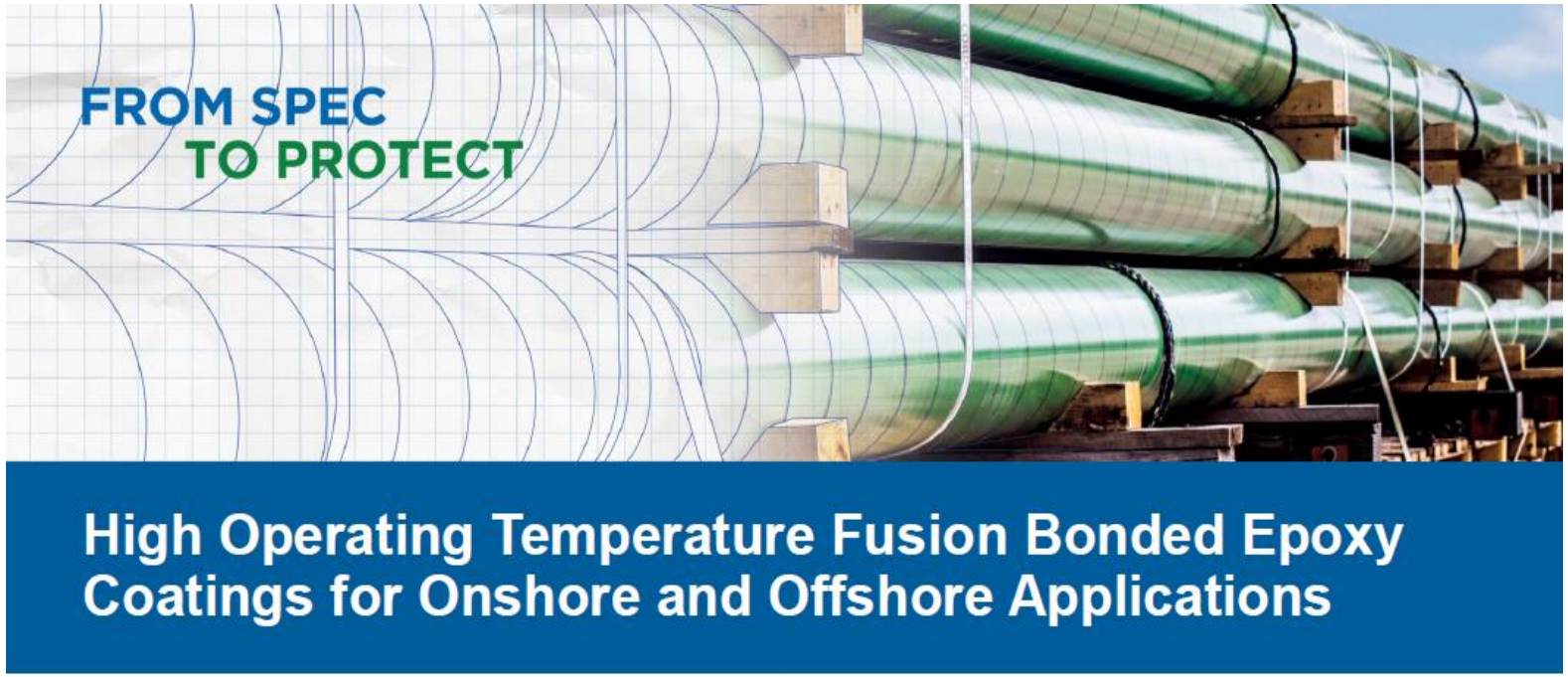
About Me

- **Dr. Jeffrey D. Rogozinski**, Global Product Director, The Sherwin-Williams Company.
- Dr. Jeffrey D. Rogozinski has over 29 years of coatings experience and is a Global Product Director in Sherwin Williams Protective & Marine Coatings division. He is a member of multiple coatings societies and is an active consultant on global specification writing including CSA, ISO, API, ASTM and NACE. He has been with Sherwin Williams for 10 years and held previous positions in protective coatings and powder coatings, resin and additive development for coatings science with an emphasis on polymer synthesis and structure-property characterisation as well as multiple academic positions. Dr. Rogozinski has his PhD in Applied Science: Polymer and Composite Chemistry from The College of William and Mary in Virginia.

SHERWIN-WILLIAMS®

About our Work

- The **SHERWIN-WILLIAMS** COMPANY was founded by Henry **Sherwin** and Edward **Williams** in 1866. Today, the company is a global leader in the development, manufacture and sale of coatings and related products with more than 33,000 employees and business in 109 countries.



Q&A

- Selection of Questions to Dr. Jeffrey D. Rogozinski, Global Product Director
- The Sherwin-Williams Company,

  Post-Presentation 18/01/2021

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q1.** What is the main purpose of MRO ? Doesn't the corrosion protection come from the FBE ?

- **A1.** FBE will absorb moisture over time. If gets to interface, can get trapped / steam driven delamination. MRO provides secondary protection.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q2.** What are considerations for Glass Transition (GT) ?

- **A2.** GT need to be appropriate to circumstances. Think of all individual factors that may apply. E.g. Stated Op. Temp (has multiple inputs/effects) i.e. is O2 present ?, is it deep underwater ?

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q3.** I have personal experience of 3 Layer System failures. How can we prevent these ?

- **A3.** All coatings will failure over time. That is a fact, hence they are always CP protected if buried / submerged. Dual FBE/MRO has caught up now with 3 Layer PE performance and mechanical protection. Audience Comment - Many of us have seen FBE coatings on pipelines with some blistering. This is sometimes considered to be really bad. But in my experience, if preparation and coating application are generally good, the local blistering / water uptake, (will with good CP, mean that the liquid in the blister is high pH and there is no corrosion).

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q4.** Do you have any experience of coating systems to protect underside of above ground storage tanks, say at 80-90°C ?

- **A4.** Epoxy type coatings are generally best for this purpose.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q5.** What about the ease of Field Joint repairs for Dual layer FBE/MRO systems v. 3 Layer PE Systems ?

- **A5.** Generally, these are much easier and cheaper to perform on FBE/MRO systems than for 3 Layer PE.

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- **Q6.** Did you say that 3 Layer PE Coatings are Code banned in US, due to CP Shielding ?

- **A6.** Yes, nothing can be used that will interfere with CP current transmission is allowed and FBE coatings are actively promoted in US codes.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q7.** I am curious about your comments on the relevance of hypochlorite in the (CD) cathodic dis-bonding tests. Hypochlorite forms at the anode in the CD test cell; so it will affect the coating under test. In reality, however, a cathodically protected pipeline will be remote from the anode. So the coating it will not encounter hypochlorite ?

- **A7.** All CD testing must be completely relevant to the exact operating situation, e.g. whether submerged or not submerged. Different reactions will take place according to exact conditions / electroyte's. Submersion in saltwater is a very conductive path and distance from Anode becomes less relevant.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q8.** What are the DO's and DON'T's regarding its surface preparation, application and inspection for HOT FBE, as to the design life coating performance ?

- **A8.** Coating adhesion is very application specific. Generally surfaces require to be very clean before coating application but the use of acids, e.g. Phosphoric Acid is best avoided.
- Best to refer to product data sheet req's.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q9.** On the topic of surface prep. requirements ? Is SA2.5 or SA 3 normally required ?

- **A9.** SA 2.5 is normally prescribed minimum in Data Sheets.

Questions and Answers – MCF / ICorr Joint Event Aberdeen – Jan.2021

- **Q10.** Could you expand on Blistering Effects / Principles ?
- **A10.** Many factors can lead to blistering but often this is due to trapped air. For example, if a substrate is painted in a lower temperature environment and then later moved to a warmer environment, any trapped solvents, moisture or air will attempt to expand, causing a blister. Some coatings react with humidity / moisture and produce gas – again causing blisters. Excessive Blasting can also contribute to pockets of trapped air.

THANK YOU FOR ATTENDING

This Webinar was brought to you by MCF working in partnership with ICorr and **Sherwin Williams**.