Symposium Technical Program Manual for Symposium Chairs, Vice Chairs, Authors, and Reviewers

CORROSION 2015 Conference and Expo
March 15-19, 2015
Dallas, TX USA

NACE INTERNATIONAL
Protecting People, Assets, and the Environment from the Effects of Corrosion

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General Questions: papers@nace.org
Welcome to the NACE CORROSION 2015 Technical Committee Symposia!

The success of the NACE technical committee symposia is made possible through your contributions and your volunteer efforts.

Authors: Your paper will be peer reviewed and published as part of the CORROSION 2015 conference proceedings. Additionally, if you are a presenting author, you are eligible to receive a one-day complimentary registration at CORROSION 2015 on the day of your presentation. Presenting authors and symposium officers are also invited to attend a Speakers’ Breakfast on the day of your symposium, where the Symposium Chair and Vice Chair can talk with presenting authors before the symposium, and conference audio visual staff will provide instructions on using the audio visual system.

Symposium paper reviewers are responsible for assisting the Symposium Chair in approving the content and quality of symposium papers and making sure that they comply with the style guidelines outlined in this manual.

The Annual Conference Program Committee (ACPC) oversees all technical committee symposia. Each symposium in the technical program is sponsored by one or more of the NACE technical committees. These technical committees are organized within three general groups, Industry-Specific Technology (N), Cross-Industry Technology (C), and Science (S). There are five ACPC representatives (called Program Coordinators) who are assigned to each of the three general groups. A list of symposia that will be held at CORROSION 2015 can be found on the NACE Web site.

Thank you once again for your participation with CORROSION 2015 Technical Committee Symposia.

Sincerely,

Jerry Holton
ACPC Chair
## Symposium Deadlines

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<th>Date(s)</th>
<th>Time/Duration</th>
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<td>March 1, 2013 to May 1, 2014</td>
<td>2 months (8 weeks)</td>
<td>Call for Papers</td>
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<td>May 15 to June 17, 2014</td>
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<td>July 2 to July 30, 2014</td>
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<td>Staff Collects Reviewer Names from Symposium Chairs and Enters into System; Symposium Chair Assigns Reviewers to Specific Papers in System</td>
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<td>September 17, 2014</td>
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<td>October 15, 2014</td>
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**Important: Requesting Extensions**

- **Insufficient time to prepare a written paper is not a valid reason for missing the paper submission deadline.** In extreme cases, a deadline extension may be requested by a Symposium Chair and/or the Program Coordinator.

- The author should immediately contact the Symposium Chair. If the Symposium Chair agrees to grant an extension for a draft paper, he or she will send his/her approval to the author and simultaneously notify NACE staff.
• In the case of a final paper, the Symposium Chair will forward the request to the appropriate Program Coordinator for approval.

• **NACE staff must be notified of any extensions by the person granting the extension. Requests for extensions must be approved by the Symposium Chair or Program Coordinator at least 10 days before the deadline.**

• A maximum draft paper deadline extension of two weeks is allowed, and only ONE deadline extension may be requested during the entire process. For example, if you request an extension to upload your draft paper, you cannot receive an extension for the final paper deadline.

**Assignment of Copyright.** A signed/digitally accepted copy of the official NACE Copyright Assignment Form must be submitted to NACE Headquarters before the final paper is uploaded. In accordance with NACE Publications policy, this form may not be altered, nor can other copyright transfer forms be accepted. The paper will not be published without the NACE Copyright Agreement.

**Who Do I Contact if I Have Questions?**

**Symposium Chairs and Vice Chairs**

The Symposium Chair is responsible for the actual organization of the symposium and will be the main point of contact for authors. If he or she cannot be reached, questions should be directed to the conference personnel in the following order: Symposium Vice Chair, Program Coordinator, ACPC Chair, and ACPC Vice Chair. If these officers cannot be reached, please contact Tamara Shackleford (281-228-6218, e-mail tamara.shackleford@nace.org).

Symposium Chair, Vice Chair, and Program Coordinator information is available through Paper Trail, and NACE staff can also provide this to you. If you need to get in touch with the ACPC Chair or Vice Chair, please use the NACE Web site to contact them. NACE staff can also provide you with their contact information.

**Responsibilities of Symposium Chairs**

- Review and approval/rejection of abstracts in a symposium;
- Assignment of paper reviewers for each paper in the symposium;
- Sequencing papers in the order he/she would like them presented;
- Granting up to two-week extensions for draft papers and communicating any extensions with NACE staff;
- Requesting permission from Program Coordinator to grant up to two-week extensions for final papers, and communicating extensions with NACE staff;
- Approval/rejection of draft papers and final papers;
- Resequencing papers to finalize the order of presentations and reviewing the symposium schedule after times are assigned to papers;
- Collecting biographical information form presenting authors before the symposium.
- Authors are responsible for submitting copyright forms, **but chairs should check to make sure authors have submitted them so the papers will be published.**
Responsibilities of Symposium Vice Chairs
The Symposium Vice Chair is primarily responsible for reviewing and approving author’s presentation materials and for filling out an evaluation form on site at the symposium. Additionally, if an author cannot reach the Symposium Chair, he or she may contact the Symposium Vice chair.

NACE Staff
NACE’s staff’s function is administrative. Staff members are available to help answer questions concerning deadlines, extensions, paper or presentation format, copyright forms, and navigation of the online system. General inquiries should be sent to papers@nace.org. Staff members assisting with the symposia include:

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td>Linda Goldberg</td>
<td>Director, Technical Activities</td>
<td>Phone: 281-228-6221, E-mail: <a href="mailto:Linda.Goldberg@nace.org">Linda.Goldberg@nace.org</a></td>
</tr>
<tr>
<td>Tamara Shackleford</td>
<td>Symposium Support</td>
<td>Phone: 281-228-6218, E-mail: <a href="mailto:papers@nace.org">papers@nace.org</a></td>
</tr>
</tbody>
</table>

The Symposium Papers Process

Step 1: Abstract Submission

NACE uses an online system, Paper Trail, through which authors may submit their abstracts. Prospective authors who wish to present a paper should submit a paper title, complete author contact information, an abstract (150 to 200 words), and key words. You must submit complete contact information for each co-author. The system will not allow you to save and submit incomplete address information. However, up until the close of the Call for Papers, primary authors can enter additional co-authors, provided that full address information is submitted. **IMPORTANT: Secondary authors must be entered into the Paper Trail system to appear in the final program and on the Web when presentation times are published.**

The deadline for authors to submit their abstracts for the CORROSION 2015 symposia is May 1, 2014. Authors will be notified about the acceptance or rejection as the Symposium Chairs review and mark the abstracts. Guidelines for acceptance or rejection of an abstract can be found in this manual.

Rating of Abstracts

Following the conclusion of the Call for Papers, the chair will be directed to rate submitted abstracts on a scale of 1 to 5 (5 being the highest) using the following criteria:

-- Does the paper relate to the subject of the symposium?
-- Is the title appropriate for the content of the abstract?
-- Does the abstract suggest that quality technical work was performed?
-- Is the paper non-commercial in nature?
-- Is the paper rehashing old information?
Step 2: Preparation of Draft Papers

Accepted authors will be sent a link to the Author’s Page, where they may download a template for writing their symposium paper. The style guidelines for NACE technical papers are very important and must be followed. Style guidelines are located on pp. 7-11.

Checklist for Papers

☐ Does the paper exceed 15 pages? Papers shall not exceed 15 pages unless the Symposium Chair requests permission from the ACPC Chair, and the ACPC Chair approves.

☐ Does the paper lack commercial bias?

☐ Is the paper written for the reader of a technical journal and not in the vernacular of a speaker?

☐ Are the title, abstract, tables, figures, and figure captions free of trade names/company names? Trade names/company names (if they are absolutely necessary) are allowed only ONCE in the paper text and must always be footnoted (†Trade name).

☐ Did the author obtain written permission from copyright holders if he or she used copyrighted material (as well as acknowledge the source and copyright holder in a footnote)?

☐ Is the paper single-spaced and the text contained within the correct margins (178 mm [7 in] wide text?)

☐ Does the paper include an abstract, introduction, and a summary or conclusions? (A good paper also usually has experimental procedure, results, acknowledgments, and references.)

☐ Do all cited materials in the paper (including standards) include a reference number, and are the cited materials listed in the “References” section?

☐ Do all of the figures have captions? Do all the tables have headings? Do the headings and captions follow the format given in the Technical Program Manual?

☐ Are photos contained in the paper suitable for viewing in black and white as well as color? While color is suitable for the electronic version of the paper, it must also be able to be produced in black and white.

☐ Are actual units of measurement (U.S. customary or metric) given first, followed by the metric equivalent if the unit is a U.S. customary unit?

☐ Did the author adhere to the guidelines contained in this manual for producing a PDF file? It is important that fonts be embedded in the electronic file for it to be read-displayed as intended by the author.

If your answer is “NO” to any one of these questions, authors should double-check the format and style instructions.
Inhibition of Carbon Steel Stress Corrosion Cracking in Fuel Grade Ethanol by Chemical Addition or Oxygen Control: A Feasibility Evaluation

F. Gui, Hongbo Cong, J. A. Beavers, Narasi Sridhar
Det Norske Veritas (USA), Inc.
5777 Franz Road
Dublin, OH 43017

ABSTRACT

Carbon steel is susceptible to stress corrosion cracking (SCC) in fuel grade ethanol (FGE). The SCC can be mitigated by either adding chemical inhibitors or removing oxygen. The present work studies the performance of inhibitors under flowing condition that simulated pipe flow using crack growth rate tests. Oxygen scavenger performance was also evaluated by slow strain rate (SSR) tests and crack growth test. Large-scale flow loop test was also performed to evaluate the scavenger performance. The results suggest that the inhibitors that demonstrated effective in mitigating SCC also performed well under flowing condition. The feasibility of SCC mitigation using these two methods was evaluated based on the experimental results and economic considerations. Although oxygen control was demonstrated to be effective in the laboratory tests, removing oxygen from large volume of FGE may not be a viable option to mitigate SCC. Thus, inhibitor addition may be a more reasonable option to mitigate carbon SCC in FGE. Considering inhibitor application is a well-established operation practice in pipeline operation in combating general corrosion.

Key words: stress corrosion cracking, SCC, corrosion, biofuel, ethanol, mitigation

INTRODUCTION

Stress corrosion cracking (SCC) has been observed in carbon steel tanks and piping in contact with fuel grade ethanol (FGE) in user terminals, storage tanks, and loading/unloading racks. Detailed laboratory studies sponsored by American Petroleum Institute (API) and Renewable Fuel Association (RFA) were performed. Pipeline Research Council International (PRCI) and Pipeline and...
Experimental Procedure (when a test program was involved): Explanation of how the equipment was used/how tests were conducted. Any unusual test procedure should be explained; the development of experimental equipment should be discussed, with illustration, if possible; evaluation of equipment and its application may be included.

Results: Results should be presented in the clearest form, whether it is text, graphs, or tables. The text should be used to give essential information on illustrations. All terms used in text, tables, and graphs should be defined.

Tables: All graphic elements in tabular form shall be designated as a “Table.” No trade names/company names may appear in tables or headings.

Abbreviations and Acronyms: Abbreviations that may be unfamiliar to the reader should be spelled out, followed by the abbreviation the first time it appears in the paper. All but the most common acronyms should be handled this way.

Tables: All tables shall be numbered consecutively, using Arabic numerals and shall be mentioned in the text in numerical order. Center title above the table with the table number centered on the first line (e.g., Table 1 [no colon]), the table title centered on the next line, and start the table on the third line. Tables may be either single or double column width—83 or 177 mm (3.25 or 7 in) wide.
Use of UNS Numbers: If they have been assigned, Unified Numbering System (UNS) numbers, specification numbers, or chemical compositions must be used in place of material trade names.

Use of Metric Units of Measurement: The actual unit of measurement (U.S. customary or metric) shall be given first. If this is a U.S. customary unit, it shall be followed by its metric equivalent in parentheses. If the actual measurement is in metric units, no U.S. customary conversion is required. The use of metric units is preferred and must conform to those defined by ASTM SI 10.

For measurements in U.S. units, “in” is preferred to “inches,” “ft” to “feet,” “lb” to “pound,” etc.

Do NOT use hash marks to show measurements (e.g., 1” for 1 inch).

Use of Trade Names: Generic names shall be used in place of trade names. Trade names shall not appear in the title, abstract, tables, figures, or captions.

A trade name may be used only ONCE in the text of the paper and must be identified with a footnote that states “Trade name.”

****Definition of a Trade Name****
The name given by a manufacturer or merchant to a product, process, or service to distinguish it as made or sold by the concern which may or may not be used or protected as a trademark. Trade name also refers to any name under which the concern does business (e.g., company name, association, organization, etc.). This definition includes company names in addition to product, process or software names, URL (Web) addresses, and does not exclude names that are not necessarily copyrighted or have a trademark.

The damage state parameter was calculated for each of the three sensor nodes included in the 172 data sets according to Equation 4. An average damage state parameter was then calculated by averaging the three sensor node damage state values. The average damage state parameter was correlated to the coating defect area ($R^2 = 0.67$, Figure 23). The data was best fit using a three parameter sigmoidal function, although a logarithmic line is given in the figure. This empirical fit, using readily measured impedance data, is another approach to in-situ coating characterization that can be used to more simply assess coating damage.

\[ y = \frac{\log(z)}{\log(z) - \log(z_0)} \]

(4)

Figure 23: Plot of average damage state parameter relative to the coating defect area for 172 data sets. Logarithmic fit is given; however, a sigmoidal function is more appropriate and statistically significant fit.

CONCLUSIONS

It has been demonstrated that two electrode impedance measurement techniques using simple sensing electrodes can be used to predict coating defect size and relative location. The sensor measurements can be used in combination with artificial neural network algorithms to achieve an automated coating damage prediction. Other methods for accommodating changing tank conditions using data normalization and regression modeling with dimensionless damage state parameters are strategies that may also support coating condition assessment.

Future Work

Although voltage was demonstrated to be dependent on coating defect area, the initial ANN work has focused on using electrochemical impedance over a range of frequencies to characterize the coating condition. It is expected that these and other inputs such as phase, solution conductivity, and temperature may all be useful in determining coating condition and level of cathodic protection.

ACKNOWLEDGEMENTS

This material is based upon work supported by the Naval Sea Systems Command (NAVSEA) under Contract No N00167-11-P-0430. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Naval Sea Systems Command.
REFERENCES

1. NACE SP0390 (formerly RP0390) (latest revision), "Maintenance and Rehabilitation Considerations for Corrosion Control of Atmospherically Exposed Existing Steel-Reinforced Concrete Structures" (Houston, TX: NACE).

2. NACE SP0308 (latest revision), "Inspection Methods for Corrosion Evaluation of Conventionally Reinforced Concrete Structures" (Houston, TX: NACE).


4. ACI® 365.1R (latest revision), "Service-Life Prediction" (Farmington Hills, MI: ACI).


14. NACE SP0290 (formerly RP0290) (latest revision), "Impressed Current Cathodic Protection of Steel in Atmospherically Exposed Concrete Structures" (Houston, TX: NACE).

15. NACE SP0418 (latest revision), "Cathodic Protection of Reinforcing Steel in Buried or Submerged Structures" (Houston, TX: NACE).


For more examples, please refer to the NACE International Publications Style Manual, Appendix J.

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American Concrete Institute (ACI), 39600 Country Club Dr., Farmington Hills, MI 48331.

ASTM International (ASTM), 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.
Step 3: Send Biographical Information to Symposium Chairs

NACE staff and symposium chairs ask presenting authors to please upload biographical information through the Paper Trail system for the Symposium Chair to use to introduce them before their presentations.

Step 4: Draft Paper Review

Primary authors whose abstracts have been accepted will be given access to the online system and to the Authors’ Web site, which provides them with a template to aid in the preparation of their drafts. **The author is responsible for preparing a draft and submitting it through the online system before September 17, 2014. Authors must also submit all signed copyright forms to NACE Headquarters by this date. Papers will not be published without a signed copyright form.**

The paper reviewers (who have been assigned by Symposium Chairs) will review papers **between September 17 and October 15, 2014.** The reviewers will submit their comments to the Symposium Chair using the online system. **Please note that reviewer comments and reviewers’ revised drafts that are uploaded into the online system are visible to the authors unless the Symposium Chair hides them.**

The deadline for Symposium Chairs to review and transmit comments to authors is November 14, 2014. NACE staff also reviews papers for formatting and commercialism/trade names and may contact authors to request corrections. **Both NACE staff and Symposium Chair comments must be addressed.**

![Flowchart]

**Author uploads draft in online system.**

**Reviewer downloads draft and submits comments through the online system.**

**Symposium Chair assesses reviewer’s comments and if accepted, transmits comments to author.**

**NACE staff reviews papers for formatting and commercialism and transmits comments to author.**

Step 5: Final Paper Review

After authors have addressed any comments that have been transmitted to them and have made corrections to their draft papers, they must upload a final paper in the online system in PDF format, which the Symposium Chair will review and approve. **Any PDF files that are not marked as “Final Approved” in the online system by the Symposium Chair are not considered approved.** Please refer to the Checklist for Papers on p. 6 to ensure that all style requirements have been met. Copyright forms MUST be submitted; the paper will not be published without a valid copyright assignment form. Alternate forms are not acceptable. (See notation on form if author is a government employee.)

**Preparation of PDF Files**

No file security should be set on any files. **All fonts must be accurately embedded in the PDF file.** Non-English fonts (Asian fonts), if not embedded correctly, will be substituted automatically by a different font, causing possible inaccuracy in the content of the document. Moreover, files that contain Asian fonts are usually not searchable.

Using Microsoft Word 2010, to create a PDF file with embedded fonts, you must save the Word file as a Postscript (.ps) file first. Once you’ve done this, open the program Adobe Distiller. Go to the “Settings” menu at the top and select “Edit Adobe PDF Settings.” This will take you to a new window. Select the “Fonts” tab and check the box that says “Embed All Fonts.” Then, click OK. Afterward, you may use Adobe Distiller to create a PDF and it will embed your fonts. **NOTE:** If other versions of Microsoft Word or word processors are used, this process may be different.
File Size

The online system can accept files that are up to 30 MB. It has been our experience that in almost all instances when an author cannot upload a file because of file size, there is a limitation set on his or her computer that limits the size of files. Sometimes uploading files from home rather than work solves this problem.

Step 6: Preparation of Presentations

Once final papers have been approved, authors will be ready to prepare their presentations. PowerPoint presentations are the only type of presentation material permitted. All presentations must be submitted through the Paper Trail system.

Style Guidelines for Presentations

Time Schedule: The default presentation time is 20 or 25 minutes. Five minutes at the end of the presentation should be reserved for questions and discussion. NACE Headquarters will set the starting times and inform authors of the time schedule. The author must present at the time that is printed in the final program. A “speaker timer” is used on the podium to maintain the schedule.

Commercialism: Commercialism in the presentation (e.g., references to trade names, company names, product names, etc.) must be avoided. No more than one reference may be made to any product, company, etc., in the presentation of papers, and the Symposium Chair has the responsibility of interrupting the symposium and stopping the speaker if this occurs.

Handouts: Handouts are not permitted.

Recordings: No recording is allowed during the technical symposia.

Format: Simplicity is key. Below are some recommendations for preparing your presentation.

1. Company names and logos must not appear on more than the first slide.

2. Written information: no more than **6 to 7 words** on a line; no more than **6 to 7 lines** vertically.

3. Fonts and font sizes used for text and numbers must be readable in a large symposium room. Recommended fonts are sans serif such as Arial or Helvetica. The minimum font size should be 20 point.

4. Tabulated data: (graphs, bar charts, or curves are easier to follow) no more than **3 columns** of numbers; no more than 8 lines vertically.

5. Graphs: **no grid lines**; on ordinate and abscissa lines, show small hash marks for main units only, e.g., 0-5-10-15-20. Identify ordinate and abscissa parameters simply: I for current, E for voltage, T for time, etc. If you use words, do not exceed one word each. No more than **3 curves** on one slide. Preferably, each curve should be a different color; if black and white, each curve should be different, e.g., solid line, line of dashes, line of dots and dashes. Simple identification of each curve.

6. A combination of upper- and lower-case letters is more legible than all caps.

7. Use **light** color lettering against **dark** background; letters should **contrast** with background. White letters on dark blue is best.

8. Use **landscape** orientation for all slides.
Step 7: Presentation Review

Authors are asked to upload their presentations into the online system. It is the Symposium Vice Chair who reviews these presentations and approves them through the online system. Guidelines for the presentations are provided in the following checklist.

Checklist for Presentations

☐ Are there too many slides for the assigned length of the presentation?

☐ Are the visuals too detailed for quick comprehension or is copy material too small to be seen in a large room? (Smaller than a 12 point font.)

☐ Do your slides comply with the instructions given in this manual (e.g., does the company name or logo appear on more than one slide)? Company names and logos must not appear on more than the first OR last slide (not both).

☐ Do the visuals lack commercial bias?

☐ Is the readability of the slides affected by the color of the font against the background?

☐ Are the title, figures, and figure captions free of trade names? Trade names (if they are absolutely necessary) are allowed only once in the presentation text and must always be footnoted.

If your answer is “NO” to any one of these questions, the author should double-check the format and style instructions and make corrections.

Authors who do not submit their presentations through the online system are responsible for contacting the Symposium Vice Chair before CORROSION and having their presentations approved.

What if an Author Is Unable to Give His or Her Presentation?

If a substitute speaker is needed, the author should inform the Symposium Chair and NACE Headquarters. The substitute should be one of the paper’s coauthors. If the coauthor is not available, the lead author, with the agreement of the Symposium Chair, may recommend a surrogate who can effectively present the material.

Step 8: When You Arrive on Site at CORROSION

All presenting authors should visit the Speaker Ready Room at least one day before their presentation. If this is not possible, you should visit the Speaker Ready Room at least 2 hours in advance. Please review your presentation to be sure that it looks as it did when you prepared it. If there are problems, audio visual (AV) staff will attempt to help you resolve the problem.

Authors are strongly encouraged to bring a backup copy of their presentations on disk, CD, or flash drive.

Authors should plan to attend the Speakers’ Breakfast on the day of their symposium, where they will meet with their Symposium Chairs and Vice Chairs as well as with other authors in their symposium.

The ACPC Chair and Vice Chair will give pointers about the symposium, and a representative of the Audio Visual staff will give a presentation about the equipment in the symposium rooms.