

# The MP Blog

*Experiences and opinions from readers on corrosion issues*

The following are excerpts from the NACE International Corrosion Network (NCN) and NACE Coatings Network. These are e-mail-based discussion groups for corrosion professionals, with more than 3,000 participants.

The excerpts are selected for their potential interest to a large number of NACE members. They are edited for clarity and length. Authors are kept anonymous for publication.

Please be advised that the items are not peer-reviewed, and opinions and suggestions are entirely those of the inquirers and respondents. NACE does not guarantee the accuracy of the technical solutions discussed. MP welcomes additional responses to these items. They may be edited for clarity.

For information on how to subscribe to these free list servers, click on the "Resources" link and then "Online Community" on the NACE Web site: [www.nace.org](http://www.nace.org).

## Galvanic corrosion of stainless steel bolts

**Q** I am interested in galvanic corrosion of stainless steel bolts, especially the threaded part, when used with carbon steel flanges in a marine atmosphere. What will be the surface area effect, and how can I prevent corrosion of the threaded part (it cannot be painted)?

**A** On the threaded portion side, the flange will not suffer much corrosion compared to the protruding part; there will be a lack of air diffusion if it is not immersed in water. Applying grease will help to some extent. For the external exposed threads, paint application followed by grease-filled plastic/rubber caps for long-term protection

should work. For the gap between the flange, wrap the flange with tape, preferably one with a petrolatum base. Use an anticorrosive agent in the gap between the flange faces to repel chemical and air ingress.

## Monitoring internal corrosion

**Q** Is there any technology for monitoring internal corrosion on gas pipelines other than the conventional corrosion coupons and electrical resistance (ER) probes?

**A** In a gas pipeline, the location and placement of the monitoring equipment is extremely important. Ultrasonic testing, coupons, or other techniques will reveal what is occurring in the line. You need to do some modeling to determine the probable locations of liquid condensation and/or liquid holdup as these sites will have a greater probability of corrosion. A lot will depend upon your pipeline, the geography, product composition, operating conditions, dew points, and flow. Also, look at results from failure history and intelligent pig runs.

Determine the potential problem areas first, then examine which techniques is/are best for online monitoring of the internal corrosion and maintaining system integrity.

**A** Coupons and ER probes are the simplest tools for corrosion monitoring. The data obtained from these tools are reliable to a large extent. Monitoring moisture content and

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