



WebCorr Corrosion Consulting Services Presents

API RP 584 Integrity Operating Windows

Date: As published on website Venue: As published on website

Course Overview

Corrosion is defined in the ASTM G193 standard as “the deterioration of a material, usually a metal, that results from a chemical or electrochemical reaction with its environment”. The 66 damage mechanisms described in API 571 are either due to metallurgical and microstructural changes occurring at high operating temperatures (high temperature corrosion) or the changes in chemistry such as pH, concentration of corrosives, fluid velocity at low/ambient temperatures (aqueous corrosion). For process safety, a set of critical operating ranges and limits must be established for key process variables. The establishment, implementation, and maintenance of integrity operating windows are essential for maintaining the integrity and reliability of pressure equipment. This 5-day advanced course aims to (1) provide participants with a clear and thorough understanding of why and how operating variables affect the metallurgical, microstructural, mechanical, and corrosion resistant properties of common alloys; (2) to explain the common damage mechanisms encountered in the refining and petrochemical industries; (3) to explain the importance of integrity operating windows (IOW's) for process safety management, and (4) to guide users in how to establish and implement an IOW program for the refining and petrochemical process facilities. A number of the state-of-the-art computer software for corrosion modeling and life prediction will be used as demonstrations on how to establish IOWs of critical process parameters.

This 5-day corrosion short course is available for in-house training, on-site training, online and distance learning worldwide. It can also be customized to meet the specific needs of your organization.

Who Should Attend

Designers, engineers, inspection and maintenance personnel who are concerned with corrosion, process safety, mechanical integrity, and reliability in the various industries such as refining, petrochemical, chemical process, power, onshore and offshore industries.



Course Outline

1. Introduction to Integrity Operating Windows
2. Corrosion: Basic Concepts and Terminology
3. Basic Metallurgy and the Impact of Temperature on Microstructures and Mechanical Properties
 - 3.1 Understanding the atomic structure of metals
 - 3.2 Iron-Carbon Phase-Diagram
 - 3.3 Microstructure Evolution in Steels at High Temperatures
 - 3.4 High Temperature Corrosion
4. Effect of Chemistry on Wet Corrosion
 - 4.1 Effect of Temperature
 - 4.2 Effect of pH
 - 4.3 Effect of Fluid Velocity
 - 4.4 Effect of Concentration of Chlorides & Others
5. Integrity Operating Windows: Work Process
6. Integrity Operating Windows: Risk Ranking
7. Examples of Integrity Operating Windows
8. IOW Development
9. General Considerations for Establishing IOW's and Their Limits
10. Documenting, Implementing, and Training on Established IOW's

- 11. Monitoring and Measuring IOW Parameters
- 12. Updating IOWs
- 13. Roles, Responsibilities, and Accountabilities for IOWs
- 14. Integrating IOWs with Other Related Work Processes
- 15. Examples of Potential Process Parameters for IOWs for Generic Process Units

- 16. Sample Format for Recording IOWs
- 17. Example of an IOW Development for a Heat Exchanger
- 18. Case Study: Implementation of IOWs in a Gas Processing Plant
- 19. [Corrosion Prediction & Modeling Software](#)
- 20. End-of-Course Examination

Course Registration

Please register online at www.corrosionclinic.com
Or use the form below (photocopies of this form may be used for multiple bookings).

Dr/Mr/Ms _____
 Organization _____

 Contact Person _____
 Contact Dept _____
 Telephone _____ Fax _____
 Email _____

Payment should be made by TT or online banking. Currencies in Australian Dollar, Canadian Dollar, US Dollar, Euro and Sterling Pound can be transferred directly without conversion. Our bank details can be found at the link below:

<https://www.corrosionclinic.com/payment.html>

Course Fee and Discount

Standard: \$4,950 **Discount:** \$4,455

The fee includes a hardcopy of course note, certificate, light lunch, coffee breaks each day during the course. Discount applies to a group of 3 or more persons from the same organization registering at the same time, or early-birds making payment at least 8 weeks before the course commencing date.

Cancellation and Refunds

Cancellation or replacement should be conveyed to WebCorr in writing (email or fax). An administration charge of 50% of the course fee will be levied if the cancellation notice is received from 14 to 7 days before the course commencing date. No refund will be made for cancellation notice received 6 days and less. No refunds will be given for no-shows. Should WebCorr find it necessary to cancel a course, paid registrants will receive full refund. Refund of fees is the full extent of WebCorr's liability in these circumstances.



WebCorr has NACE certified Corrosion Specialist (#5047) providing customized in-house training, online and distance learning corrosion courses, corrosion seminars and workshops on corrosion, materials, metallurgy, paints and metallic coatings. Our corrosion courses are developed and taught by NACE certified Corrosion Specialist with over 30 years of practical experience in the field. Our training success is measured by your learning outcome.

