

*WebCorr Corrosion Consulting Services Presents*

# API 583 Corrosion Under Insulation and Fireproofing: Detection, Mitigation and Prevention

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

## Course Overview

Corrosion under insulation (CUI) and fireproofing (CUF) is a major worldwide problem faced by many industries. A leak can cause safety and environmental concerns. CUI may account for up to 10% of a plant's maintenance budget. This 5-day comprehensive corrosion course aims to provide the participants with a clear and thorough understanding of the causes of corrosion under insulation and the technical know-how of CUI detection, mitigation and prevention. Upon completion of this corrosion short course the participants will be able to (1) identify different forms of corrosion under insulation; (2) analyze the root causes of corrosion failures, and (3) apply appropriate methods and strategies for detection, mitigation and prevention of corrosion under insulation. 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 under insulation and fireproofing in the various industries such as chemical process, refining, petrochemical, power, onshore and offshore industries.

## Course Outline

1. Introduction to Corrosion Under Insulation (CUI)
2. Corrosion: Basic Concepts and Terminology
3. Why Does CUI Occur –The Causes of Corrosion Under Insulation (CUI)
  - 3.1 The Corrosivity of Water and Moisture
  - 3.2 The Sources of Water
  - 3.3 How Much Water Is Required for CUI to Occur
  - 3.4 The Effect of Contaminants on Corrosion Under Insulation
  - 3.5 The Effect of Temperature on the Rate of Corrosion Under Insulation
  - 3.6 The Effect of Insulation Type and Insulation Characteristics on CUI
  - 3.7 Other Factors Influencing the Rate & Form of CUI

4. How Does CUI Occur -Common Forms of Corrosion Encountered Under Insulation
  - 4.2 General Corrosion
  - 4.3 Pitting Corrosion
  - 4.4 Crevice Corrosion
  - 4.5 Chloride External Stress Corrosion Cracking (Cl-ESCC)
5. CUI in Common Alloys
  - 5.1 CUI in Carbon and Low Alloy Steels
  - 5.2 CUI in Austenitic and Duplex Stainless Steels
  - 5.3 CUF in Carbon and Low Alloy Steels
  - 5.4 CUI on Aluminum Piping
6. Areas Susceptible to Damage
  - 6.1 General Areas of Damage
  - 6.2 Pressure Vessels
  - 6.3 Piping
  - 6.4 Tankage and Spheres
  - 6.5 Heat-traced Systems
  - 6.6 Shutdown/Mothballing
7. Insulation and Fireproofing Systems
  - 7.1 Insulation Materials
  - 7.2 Insulation Jacketing
  - 7.3 Caulking
  - 7.4 Fireproofing Materials
  - 7.5 Coatings Under Insulation & Fireproofing Systems
8. Inspection for CUI and CUF Damage
  - 8.1 Inspection of Piping Operating Below 32°F (0°C)
  - 8.2 Inspection Tools and Methods
9. Risk-Based Inspection (RBI)
  - 9.1 Inspection Activities and Strategy
  - 9.2 NDE and NDT Screening Techniques for CUI
  - 9.3 Examples of Risk-Based Inspection Plan
10. Design Practices to Minimize CUI
  - 10.1 Coatings for Hot and Cold Services
  - 10.2 Insulation Materials
  - 10.3 Jacketing
  - 10.4 General Design Aspects
  - 10.5 Insulation
  - 10.6 Heat-traced Systems
  - 10.7 Protective Coatings and Caulk
  - 10.8 Shutdown/Mothballing
  - 10.9 Quality Control/Quality Assurance
11. Design Practices to Minimize CUF
  - 11.1 Dense and Lightweight Concrete



- 11.2 Lightweight Cementitious Products
- 11.3 Intumescent Coatings and Subliming Compounds
- 11.4 Protective Coatings
- 11.5 Quality Control/Quality Assurance
- 12. Maintenance and Mitigation of CUI/CUF Issues
  - 12.1 Programmed/Condition-based Maintenance
  - 12.2 Execution
  - 12.3 Deluge System Issues

- 12.4 Mitigation of CUI/CUF Damage
- 12.5 Repair Techniques/Strategies
- 13. Case Studies and Examples
  - 13.1 Examples of a Qualitative Likelihood Assessment System
  - 13.2 Examples of Insulation Techniques for Various Applications
  - 13.3 Case Studies

### Course Registration

Please register online at [www.corrosionclinic.com](http://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:** \$3500      **Discount:** \$3150

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.

